Water Replenishment District
of Southern California

REGIONAL GROUNDWATER MONITORING REPORT
WATER YEAR 2004-2005

Central and West Coast Basins
Los Angeles County, California

March 2006

WRD

WATER REPLENISHMENT DISTRICT OF SOUTHERN CALIFORNIA

DIRECTORS
WILLARD H. MURRAY, JR. PRESIDENT
NORM RYAN, TREASURER
ROBERT KATHERMAN, SECRETARY
PAT ACOSTA, DIRECTOR
ALBERT ROBLES, DIRECTOR

ROBB WHITAKER, P.E. GENERAL MANAGER

March 2006

Dear Groundwater Stakeholder:

Each year, the WRD publishes the Regional Groundwater Monitoring Report that provides useful information for groundwater pumpers and the general public. It is with great pleasure that I present the 2004-2005 report for the Central and West Coast Basins (Basins) in southern Los Angeles County.

I am confident that the information contained in this book will prove invaluable in the coming year. The report identifies areas of impaired groundwater quality, addresses new and proposed groundwater quality regulations and assists basin managers in long-range planning for increased utilization of the groundwater basins. The book also contains the latest data on replenishment activities, groundwater production and water levels in the basins.

Finally, I would like to reaffirm WRD's commitment to protecting and replenishing the groundwater supplies. I can assure you that the talented staff at the WRD is working hard to ensure the Basins' high water quality and to preserve them for future use.

Sincerely,

Robb Whitaker., P.E.
WRD General Manager

REGIONAL GROUNDWATER MONITORING REPORT
CENTRAL AND WEST COAST BASINS
LOS ANGELES COUNTY, CALIFORNIA
WATER YEAR 2004-2005

Water Replenishment District of
Southern California
12621 E. 166th Street
Cerritos, California 90703
(562) 921-5521

Division 1	**Willard H. Murray, Jr., President**
Division 2	**Robert Katherman, Secretary**
Division 3	**Norm Ryan, Treasurer**
Division 4	**Pat Acosta, Director**
Division 5	**Albert Robles, Director**

Robb Whitaker	**General Manager**
Mario Garcia	**Assistant General Manager/ Chief Engineer**
Ted Johnson	**Chief Hydrogeologist**

Prepared by:

Tony Kirk	**Senior Hydrogeologist**
Nancy Matsumoto	**Senior Hydrogeologist**
Jason Weeks	**Senior Engineer**
Mat Kelliher	**Hydrogeologist**
Benny Chong	**Assistant Hydrogeologist**
Melody Kneale	**GIS Coordinator**
Hélène Mendoza	**Technical Support Specialist**

MARCH 2006

Executive Summary

"To provide, protect and preserve high quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins."

WRD Mission Statement

In 1959, the Water Replenishment District of Southern California (WRD) was formed by the electorate and the State of California to protect and preserve the quantity and quality of the groundwater supplies in the Central and West Coast groundwater basins (CWCB) in southern Los Angeles County. Today, these basins supply 40 percent of the water used by 4 million people in the region. This constitutes WRD's service area—covering 43 cities in a 420-square mile area.

WRD is responsible for managing and safeguarding these basins. Its focus is on maximizing the groundwater basins' capacity, preserving them for future use, and ensuring high water quality. To that end, WRD provides this Regional Groundwater Monitoring Report for Water Year 2004-2005.

WRD's staff of highly skilled hydrogeologists, engineers, planners, and Geographic Information System (GIS) specialists engage year-round in extensive collection, analysis, and reporting of critical groundwater data. They work continually to sample, track, model, forecast, and plan for replenishment and water quality activities to ensure proper groundwater management.

These efforts result in the annual publication of the District's two main reports: the Engineering Survey and Report, issued since 1960, and this Regional Groundwater Monitoring Report, issued since 1973. The Regional Groundwater Monitoring Report presents the latest information on groundwater replenishment activities, groundwater production, groundwater levels, and an extensive section on groundwater quality.

Groundwater Production

This year's groundwater production decreased by 7.4% from the previous year, from 248,334 acre-feet (AF) to 229,908 AF. This level of groundwater production was the lowest since Water Year 1994-95 resulting from lower demand during near record rainfall, mechanical operation and maintenance problems and localized water quality issues.

Groundwater Replenishment

Water conservation at the Montebello Forebay Spreading Grounds totaled almost 204,000 AF including 149,000 AF of local water, 25,000 AF of imported water, and 29,503 AF of recycled water.

At the seawater barriers, 21,580 AF of water were injected. Most of this total was imported water, while 3,920 AF was recycled water.

Groundwater Levels

Groundwater levels increased significantly over most of the CWCB during the past Water Year due primarily to greater than average replenishment at the Spreading Grounds. Water level increases in the Central Basin averaged about 20 feet and West Coast Basin water levels rose about 5 feet on average.

Groundwater Quality

In general, groundwater in the main producing aquifers of the basins is of good quality and is suitable for use now and in the future. Localized areas of marginal to poor water quality exist, primarily on the basin margins and in the shallower and deeper aquifers impacted by seawater intrusion.

Volatile organic compounds (VOCs), primarily perchloroethylene (PCE) and trichloroethylene (TCE), are present in the Central Basin and have impacted many production wells. However, most of the wells that have the VOCs are below enforceable regulatory levels. Those with higher levels require treatment prior to use as drinking water.

WRD has taken a proactive approach to protecting the basins in the face of emerging water quality issues. Through its monitoring and sampling program and evaluation of current water quality regulations, WRD has determined that the special interest constituents including arsenic, hexavalent chromium, methyl tertiary butyl ether (MTBE), total organic carbon, color and perchlorate do not pose a substantive threat to the basins at this time.

Challenges Ahead

WRD remains committed to its statutory charge to manage the public resource of the basins' storage capacity for the common good. To that end, WRD has in place innovative projects and programs and will continue to implement new water quality initiatives to ensure a continued reliable source of high-quality groundwater, reduce the reliance on costly imported water, and optimize the region's water resources for WRD's groundwater users.

Further information may be obtained at the WRD web site at http://www.wrd.org, or by calling WRD at 562-921-5521. WRD welcomes any comments or suggestions to this Regional Groundwater Monitoring Report.

TABLE OF CONTENTS

Section 1
Introduction

Section 2
Groundwater Replenishment

Section 3
Groundwater Production and Water Levels

Section 4
Groundwater Quality

Section 5
Summary of Findings

Section 6
Future Activities

Section 7
References

List of Tables

List of Figures

List of Figures (Cont'd)

SECTION 1
INTRODUCTION

The Water Replenishment District of Southern California (WRD or the District) manages groundwater replenishment and water quality activities for the Central and West Coast Basins (CWCB) in southern Los Angeles County (**Figure 1.1**). Our mission is to protect and preserve high-quality groundwater in the basins through innovative, cost-effective, and environmentally sensitive management practices for the benefit of residents and businesses of the CWCB.

As part of accomplishing this mission, WRD maintains a thorough and current understanding of groundwater conditions in the CWCB and strives to predict and prepare for future conditions. This is achieved through groundwater monitoring, modeling, and planning, which provide the necessary information to determine the "health" of the basins. This information in turn provides WRD, the pumpers in the District, other interested stakeholders, and the public with the knowledge necessary for responsible water resources planning and management.

1.1 BACKGROUND OF THE REGIONAL GROUNDWATER MONITORING PROGRAM

Since its formation in 1959, WRD has been actively involved in groundwater replenishment, water quality monitoring, contamination prevention, data management, and data publication. Historical over pumping of the CWCB caused overdraft, seawater intrusion and other groundwater management problems related to supply and quality. Adjudication of the basins in the early 1960s set a limit on allowable production in order to control the over pumping. Concurrent with adjudication, WRD was formed to address issues of groundwater recharge and groundwater quality. The Regional Groundwater Monitoring Program is an important District program which tracks water levels and water quality in the CWCB to ensure the usability of this groundwater reservoir.

Prior to 1995, WRD relied heavily upon groundwater monitoring data collected, interpreted, and presented by other entities such as the Los Angeles County Department of Public Works (LACDPW), the California Department of Water Resources (DWR), and the private sector for understanding current basin conditions. However, these data were collected primarily from production wells, which are typically screened across multiple aquifers to maximize water inflow. This results in a mixing of the waters from the different aquifers connected by a single well casing, causing an averaging of water levels and water quality.

In order to obtain more accurate data for specific aquifers from which to infer localized water level and water quality conditions, depth-specific (nested) monitoring wells that tap discrete aquifer zones are necessary. **Figure 1.2** illustrates the capabilities of nested monitoring wells to assess individual aquifers compared to typical production wells. Data are generally provided for a Water Year (WY), which occurs from October 1 to the following September 30. During WY 1994-1995, WRD and the United States Geological Survey (USGS) began a cooperative study to improve the understanding of the geohydrology and geochemistry of the CWCB. The study was documented in the published USGS Water Resources Investigations Report 03-4065, *Geohydrology, Geochemistry and Ground-Water Simulation-Optimization of the Central and West Coast Basins, Los Angeles County, California* (Reichard et al. 2003). This study was the nucleus of the Regional Groundwater Monitoring Program. In addition to compiling existing available data, this study recognized that the sampling of production wells did not adequately characterize the layered multiple aquifer systems of the CWCB. The study focused on new data collection through drilling and construction of nested groundwater monitoring wells and conducting depth-specific water quality sampling. **Figure 1.3** shows the locations of the resultant WRD nested monitoring well network. Construction details for the WRD wells are presented in **Table 1.1.**

An *Annual Report on the Results of Water Quality Monitoring* (*Annual Report*) was published by WRD from Water Years 1972-1973 through 1994-1995, and was based on a basinwide monitoring program outlined in the *Report on Program of Water Quality*

Monitoring (Bookman-Edmonston Engineering, Inc., January 1973). The latter report recommended a substantial expansion of the then-existing program, particularly the development of a detailed and intensive program of monitoring the quality of groundwater in the Montebello Forebay. The Regional Groundwater Monitoring Program is designed to serve as an expanded, more representative basinwide monitoring program for the CWCB. This Regional Groundwater Monitoring Report is published in lieu of the previous *Annual Reports*.

1.2 CONCEPTUAL HYDROGEOLOGIC MODEL

As described above, the Regional Groundwater Monitoring Program changes the focus of groundwater monitoring efforts in the CWCB from production zones with averaged groundwater level and groundwater quality information, to a layered multiple aquifer system with individual zones of groundwater quality and groundwater levels. WRD views each aquifer as a significant component of the groundwater system and understands the importance of the interrelationships between water-bearing zones. The most accepted hydrogeologic description of the basin and the names of water-bearing aquifers were provided in California Department of Water Resources, *Bulletin No. 104: Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A – Ground Water Geology* (DWR, 1961). WRD generally follows the naming conventions of this report, redefining certain aspects when new data become available.

The locations of idealized geologic cross-sections AA' and BB' through the CWCB are shown on **Figure 1.3**. Cross-sections AA' and BB' are presented on **Figures 1.4 and 1.5**, respectively. These cross-sections are derived from cross-sections presented in Bulletin 104 as well as recent data from the Regional Groundwater Monitoring Program, and illustrate a simplified aquifer system in the CWCB. The main potable production aquifers are shown, including the deeper Lynwood, Silverado, and Sunnyside aquifers of the lower Pleistocene San Pedro Formation. Other main shallower aquifers, which locally produce potable water, include the Gage and Gardena aquifers of the upper Pleistocene Lakewood Formation. Also shown on the geologic sections are the aquitards

separating the aquifers. Throughout this report the aquifers shown on the geologic sections are referred to as discrete groundwater zones. Many references are made to the Silverado aquifer producing zone, which typically includes the Lynwood aquifer and may also include the Sunnyside aquifer.

1.3 GIS DEVELOPMENT AND IMPLEMENTATION

WRD uses a sophisticated Geographic Information System (GIS) as a tool for CWCB groundwater management. Much of the GIS was compiled during the WRD/USGS cooperative study. The GIS links spatially-related information (e.g., well locations, geologic features, cultural features, contaminated sites) to data on well production, water quality, water levels, and replenishment amounts. WRD uses the industry standard ArcGIS® software for data analysis and preparation of spatially-related information (maps and graphics tied to data). WRD utilizes Global Positioning System (GPS) technology to survey the locations of basinwide production wells, nested monitoring wells and other geographic features for use in the GIS database.

WRD is constantly updating the GIS with new data and newly-acquired archives of data acquired by staff or provided by pumpers and other agencies. The GIS is a primary tool for WRD and other water-related agencies to more accurately track current and past use of groundwater, track groundwater quality, and project future water demands, thus allowing improved management of the basins.

In early 2003, WRD completed the development of its Internet-based GIS, which was made available to the public for access to CWCB groundwater information. WRD's Internet-based GIS can be accessed through our web site at *http://gis.wrd.org*. The web site provides the public with access to much of the water level and water quality data contained in this report. The well information can be accessed through either an interactive map or a text search and the resulting data can be displayed in both tabular and graphical formats.

1.4 SCOPE OF REPORT

This report updates information on groundwater conditions in the CWCB for WY 2004-2005, and discusses the status of the Regional Groundwater Monitoring Program. Section 1 provides an overview of WRD and its Regional Groundwater Monitoring Program. Section 2 discusses the types, quantities, and quality of different source waters used by WRD for replenishment at the Montebello Forebay Spreading Grounds and the seawater barriers. Section 3 summarizes groundwater production in the CWCB, and evaluates water level, storage change, and groundwater elevation data for WY 2004-2005. Section 4 presents water quality data for the WRD nested monitoring wells and basinwide production wells. Section 5 summarizes the findings of this report. Section 6 describes future regional groundwater monitoring activities. Section 7 lists the references used in this report.

SECTION 2
GROUNDWATER REPLENISHMENT

Natural groundwater replenishment occurs through the percolation of precipitation and applied waters (such as irrigation), conservation of stormwater in spreading grounds, and underflow from adjacent basins. Although it occurs to an extent within the CWCB, there is insufficient natural replenishment in the CWCB to sustain the groundwater pumping that takes place. Therefore, WRD provides for artificial groundwater replenishment through the purchase of imported and recycled water to make up the difference between groundwater pumping and natural replenishment. Artificial replenishment occurs at the Rio Hondo and San Gabriel River Spreading Grounds, at the Alamitos Gap, Dominguez Gap, and West Coast Barriers, and through the District's In-Lieu Program. This section describes the sources, quantities, and quality of water used for artificial replenishment in the CWCB during WY 2004-2005.

2.1 SOURCES OF REPLENISHMENT WATER

Replenishment water comes from imported, recycled, and local sources. The types used by WRD are described below:

- Imported water: This source comes from the Colorado River and/or the State Water Project via pipelines and aqueducts. WRD purchases this water from the Metropolitan Water District (MWD) both for surface recharge at the Montebello Forebay Spreading Grounds and for injection at the seawater barriers. For the spreading grounds, the water is replenished without further treatment from the sources, as the source quality is high and the water is treated naturally as it percolates through the vadose zone soils. For the seawater barrier wells, the water is treated to meet all drinking water standards before injection, since it will not be percolating through vadose zone soils. Spreading water is available seasonally from MWD if they have excess reserves, whereas a premium price is paid for non-interruptible injection water at the barriers to maintain deliveries throughout the year and during droughts.

- Recycled water: This source's relatively low unit cost and good quality coupled with its year-round availability make it highly desirable as a replenishment source. However, its use is limited by regulatory agencies. Tertiary-treated recycled water is used for replenishment at the spreading grounds. Tertiary-treated recycled water followed by additional microfiltration and reverse osmosis treatment is used for injection at the West Coast and Alamitos Gap Barriers, and will soon be used at the Dominguez Gap Barrier.
- Make-Up Water: "Make-Up Water" is occasionally delivered to the Montebello Forebay Spreading Grounds from the Main San Gabriel Basin. This water, termed the "Lower Area Annual Entitlement", was established in accordance with the judgment in Case No. 722647 of Los Angeles County, City of Long Beach, et al vs. San Gabriel Valley Water Co., et al (Long Beach Judgment). During WY 2004-2005, Make-Up Water was not delivered to the Lower Area.
- Local water: Local water consists of channel flow from local sources (e.g., stormflow, rising water, incidental surface flows) conserved in the Montebello Forebay Spreading Grounds by the LACDPW. Precipitation falling on the basin floor and water applied to the ground (such as irrigation water) are also considered to be local water as they also percolate into the subsurface and contribute to recharge.
- Subsurface water: Groundwater flows into and out of the CWCB from adjacent groundwater basins (Santa Monica, Hollywood, Main San Gabriel, Orange County) and the Pacific Ocean. The amounts of inflow and outflow depend on the hydrogeologic properties of the aquifers and the groundwater gradients at the basin boundaries.

2.2 QUANTITIES OF REPLENISHMENT WATER

Current and historical quantities of water conserved (replenished) in the Montebello Forebay Spreading Grounds are presented on **Table 2.1**. Current and historical seawater barrier injection amounts are shown on **Table 2.2**. The calculations required to determine the total quantity of artificial replenishment water necessary for the CWCB prior to each Water Year are outlined in the District's annual *Engineering Survey and Report* (ESR).

At the Montebello Forebay Spreading Grounds (**Table 2.1**), the following are noted for the quantities of replenishment water for WY 2004-2005:

- Total water conserved in the Rio Hondo System (consisting of the Rio Hondo Spreading Grounds and percolation behind the Whittier Narrows Dam) and the San Gabriel System (consisting of the unlined San Gabriel River south of the Whittier Narrows Dam and the San Gabriel River Spreading Grounds) was 203,322 acre-feet (AF). This is the most conserved since WY 1991-92 and far greater than the historical running average of 128,022 AF (WY 1963-64 through 2004-05).

- The quantity of local water conserved during WY 2004-2005 was 148,523 AF, almost three times the historical running average of 51,461 AF, and six times the previous 5-year average of 34,091 AF (WY 1999-00 through 2003-04).

- The quantity of imported water conserved during WY 2004-2005 was 25,296 AF. This is less than the long-term running average of 44,193 AF, and less than the previous 5- year average of 31,928 AF.

- The quantity of recycled water conserved during WY 2004-2005 was 29,503 AF. This is less than the long-term running average of 32,368 AF and less than the previous 5-year average of 47,016 AF.

- In addition to the water sources shown on **Table 2.1**, the Montebello Forebay received an estimated 7,100 AF of recharge due to infiltration of precipitation falling on the forebay floor, and an estimated 25,200 AF of groundwater underflow from San Gabriel Valley. The total replenishment was therefore 235,622 AF, of which 12.5% was recycled water. The three-year average recycled water used was 39,022 AF, and the three-year averaged percent recycled water component was 22.5 %.

At the seawater intrusion barriers (**Table 2.2**), the following trends are noted for the

quantities of artificial replenishment water for WY 2004-2005:

- At the West Coast Basin Barrier, 8,468 AF were injected, which included 4,548 AF of imported water and 3,920 AF of recycled water (46%). The current limit for recycled water injection is 50% of the total supply. The long-term injection average from WY 1963-64 through 2004-05 was 20,224 AF. The 5-year average (2000-01 through 2004-05) was 15,776 AF. Injection amounts were lower in 2004-2005 for several reasons; the DPW is installing a telemetry system at the barrier which required suspending injection for several months, WRD requested some reductions due to localized over-injection, and WBMWD had difficulty producing recycled water due to influent quality from the Hyperion Plant source.

- At the Dominguez Gap Barrier, 8,557 AF were injected. The long-term average from WY 1970-71 through 2004-05 was 6,015 AF, and the 5-year average (2000-01 through 2004-05) was 6,417 AF. To date, only imported water has been injected at the Dominguez Gap Barrier; however, WRD and the City of Los Angeles plan to augment this source with recycled water in WY 2005-06.

- At the Alamitos Barrier, both WRD and Orange County Water District (OCWD) provide injection water; WRD for wells on the Los Angeles County side, and OWCD for wells on the Orange County side. During WY 2004-2005 a total of 4,555 AF were injected into the barrier system, 2,870 by WRD and 1,685 by OCWD. The long-term average from WY 1964-65 through 2004-05 was 5,101 AF, and the 5-year average (2000-01 through 2004-05) was 5,428 AF. Up to the end of WY 2004-2005 only imported water has been injected at the Alamitos Barrier; however, WRD will augment this source with recycled water during WY 2005-06.

2.3 QUALITY OF REPLENISHMENT WATER

This section discusses water quality data for key parameters in WRD replenishment water

and local surface water. Although numerous other constituents are monitored, the constituents reported here are the ones found to be most prevalent and at elevated levels or of current regulatory interest in wells in the CWCB. The data are classified according to their sources. The key water quality parameters of this discussion are: total dissolved solids (TDS), hardness, sulfate, chloride, nitrogen, iron, manganese, trichloroethylene (TCE), tetrachloroethylene (PCE), total organic carbon (TOC), and perchlorate. Monitoring the concentrations of these constituents is necessary for an understanding of the general chemical nature of the recharge source, and its suitability for replenishing the groundwater basins. A brief description of each parameter follows. Various criteria are used in discussing water quality. An Notification Level (NL) is a non-regulatory health-based advisory level established by the California Department of Health Services (DHS) based on preliminary review of health effects studies for which enforceable levels have not been established. Notification Levels and Response Levels replaced State Action Levels effective January 1, 2005 per California Health and Safety Code Section 116455. A Public Health Goal (PHG) is an advisory level that is developed by the Office of Environmental Health Hazard Assessment (OEHHA) after a thorough review of health effects and risk assessment studies. A Primary Maximum Contaminant Level (MCL) is an enforceable drinking water standard that DHS establishes after health effects, risk assessments, detection capability, treatability and economic feasibility are considered. A Secondary MCL is established for constituents that impact aesthetics of the water, such as taste, odor, and color, and do not impact health. It should also be noted that constituents with NLs often are considered unregulated contaminants for which additional monitoring may be required to determine the extent of exposure before PHGs and MCLs are established.

- Total Dissolved Solids (TDS): TDS is a measure of the total mineralization of water and is indicative of general water quality. In general, the higher the TDS, the less desirable a given water supply is for beneficial uses. The Secondary MCL for TDS ranges from 500 milligrams per liter (mg/L), which is the recommended level, to 1,500 mg/L, which is the upper limit allowed for short-term use.
- Hardness: For most municipal uses, hardness (a measure of calcium and magnesium

ions that combine with carbonates to form a precipitate in water) is an important mineral characteristic of water. Some degree of hardness is considered to be beneficial to human health; studies suggest that it helps to lower cholesterol levels. Excessive hardness is undesirable because it results in increased consumption of cleaning products, scale on pipes, and other undesirable effects. There is no MCL for hardness, but generally waters are considered soft when it is less than 75 mg/L and very hard when greater than 300 mg/L.

- Sulfate: Sulfate is generally not a water quality concern in the CWCB. In excess amounts, it can act as a laxative. DHS has established a Secondary MCL for sulfate at 250 mg/L and up to 600 mg/L for short-term use. Sulfate is, however a very useful water quality constituent in the CWCB for use in tracking flow and observing travel times of artificial recharge water. Colorado River water and recycled water used for recharge in CWCB have characteristically high sulfate concentrations (greater than 100 mg/L), while native groundwater and State Water Project water have relatively low sulfate concentrations (around 50 mg/L).
- Chloride: Chloride in reasonable concentrations is not harmful to human health. It is the characteristic constituent used to identify seawater intrusion. While recharge sources contain moderate concentrations of chloride, these concentrations are well below the Secondary MCL for chloride of 250 mg/L. Water containing chloride concentrations above this level begins to taste salty. When the ratio of chloride to other anions such as sulfate and bicarbonate becomes high, there is a strong indication of seawater intrusion or possible industrial brine impact to groundwater.
- Nitrogen species: DHS Primary MCLs limit two forms of nitrogen, nitrite and nitrate, in drinking water. Nitrate cannot exceed concentrations of 45 mg/L (measured as Nitrate), corresponding to 10 mg/L as Nitrogen. Nitrite is limited to 1 mg/L as Nitrogen. The combined total of nitrite and nitrate cannot exceed 10 mg/L. These constituents are of concern because they can cause anoxia in infants. When consumed in excess of these limits, they reduce the uptake of oxygen causing shortness of breath, lethargy, and a bluish color. Continued exposure to these constituents in excess of the limits can be fatal.
- Iron: Typically, iron occurs naturally in groundwater. It is also leached from

minerals or steel pipes as rust. Small concentrations of iron in water can affect the water's suitability for domestic or industrial purposes. The Secondary MCL for iron in drinking water is 0.3 mg/L because iron in water stains plumbing fixtures and clothing, incrusts well screens, and clogs pipes and may impart a salty taste. It is considered an essential nutrient, important for human health, and does not pose significant health effects except in special cases. Some industrial processes cannot tolerate more than 0.1 mg/L iron.

- Manganese: Manganese, also naturally occurring, is objectionable in water in the same general way as iron. Stains caused by manganese are black and are more unsightly and harder to remove than those caused by iron. The Secondary MCL for manganese is 50 micrograms per liter (µg/L). Like iron, it is considered an essential nutrient for human health.
- Trichloroethylene (TCE): TCE is a solvent used in metal degreasing, textile processing, and dry cleaning. Because of its potential health effects, it has been classified as a probable human carcinogen. The Primary MCL for TCE in drinking water is 5 µg /L.
- Perchloroethlene (PCE): Perchloroethylene (also known as tetrachloroethylene, perc, perclene, and perchlor) is a solvent used heavily in the dry cleaning industry, as well as in metal degreasing and textile processing. Like TCE, PCE is a probable carcinogen. The Primary MCL for PCE in drinking water is 5 µg/L.
- Total Organic Carbon: Total organic carbon (TOC) is the broadest measure of all organic molecules in water. TOC can be naturally-occurring, wastewater-derived, or a combination of both (National Research Council, 1998). While there is no MCL established for TOC, regulators are generally concerned with wastewater-derived TOC as a measurable component of recycled water. It is a surrogate parameter which may idicate the potential for production of disinfection byproducts.
- Perchlorate: Perchlorate is used in a variety of defense and industrial applications, such as rockets, missiles, road flares, fireworks, air bag inflators, lubricating oils, tanning and finishing leather, and the production of paints and enamels. When ingested, it can inhibit the proper uptake of iodide by the thyroid gland, which causes a decrease in hormones for normal growth and development and normal metabolism.

The DHS NL is 6 µg/L.

Quality of Imported Water

As stated previously, treated imported water is used at the seawater barriers. This water meets all drinking water standards and is suitable for direct injection. Average water quality data for treated imported water are presented in **Table 2.3**.

Untreated imported water ("raw water") is used for recharge at the Montebello Forebay spreading grounds. The average TDS concentration of Colorado River water was 633 mg/L in 2005. The average TDS concentration of State Project Water was 261 mg/L.

The average hardness of untreated Colorado River water was 307 mg/L. The average hardness of untreated State Project Water was 111 mg/L.

The average nitrate plus nitrite concentration of Colorado River water has decreased from the previous reported water year remained below detection limits. The average nitrate plus nitrite concentration of State Project Water has increased over the previous reported water year to 0.63 mg/L. Recently and historically, both Colorado River and State Project Water nitrate plus nitrite concentrations have been far below the MCL.

The average iron and manganese concentrations of untreated Colorado River Water have remained below detection limits. Iron and manganese in State Project Water was also below detection limits. Both Colorado River and State Project Water iron and manganese concentrations have historically been below the MCL.

The average chloride and sulfate concentrations of Colorado River Water and State Project Water have not changed significantly over the past several years. Both Colorado River and State Project Water chloride and sulfate concentrations have historically been below their respective MCLs.

Total organic carbon was reported at 3 mg/L in both untreated Colorado River and State

Project Water. According to the MWD, TCE and PCE have not been detected in Colorado River Water or State Project Water during the reporting period. Untreated Colorado River Water had an average concentration to 4.4 µg/L of perchlorate. Perchlorate was not detected in State Project Water in 2005.

Quality of Recycled Water

Recycled water is introduced into the CWCB through percolation and injection. In the Montebello Forebay, recycled water from the Whittier Narrows Water Reclamation Plant (WRP), San Jose Creek East WRP, San Jose Creek West WRP, and Pomona WRP is diverted into spreading basins where it percolates into the subsurface. The water quality from these WRPs is carefully controlled and monitored, as required by permits, and typically shows little variation over time. **Table 2.3** presents average water quality data from these WRPs. All constituents listed have either decreased slightly or remained stable over recent Water Years. Furthermore, neither TCE nor PCE have been detected above their MCLs in recycled water from these four WRPs over the last five Water Years.

Recycled water from the West Basin Municipal Water District WRP undergoes advanced treatment using microfiltration and reverse osmosis, is blended with imported water, and is then injected at the West Coast Barrier. This water is treated to meet or exceed drinking water standards and is suitable for direct injection. The blend of recycled water and imported water is injected to prevent the intrusion of salt water and to replenish the groundwater basins. The DHS presently limits injection of recycled water to 50 percent of the total injected amount. However, the West Basin Municipal Water District recently received approval from the RWQCB to increase the current recycled water percentage to 75 percent of the injected amount, and to 100 percent recycled water in the future. **Table 2.3** presents average water quality data for this injected recycled water.

Quality of Stormwater

As discussed in Section 2.1, stormwater infiltrates to some degree throughout the District. It is also intentionally diverted from the major storm channels and percolated along with

imported and recycled water at the Montebello Forebay Spreading Grounds. Periodic stormwater quality analyses have been performed by LACDPW throughout the history of operations at the Montebello Forebay Spreading Grounds. Average stormwater quality data are presented on **Table 2.3**. The average TDS, hardness, sulfate, chloride, nitrate, TCE, and PCE concentrations of stormwater in the Montebello Forebay are relatively low. TOC in stormwater was averaged 15.23 mg/L which is generally high in relation to other source waters.

SECTION 3
GROUNDWATER PRODUCTION AND WATER LEVELS

Groundwater production (pumping) is the major source of groundwater outflow from the CWCB. Groundwater currently provides about 40 percent of the total water used in the basins. It is critical to maintain adequate supplies of groundwater in storage to meet this demand and to protect against times of drought when imported water may not be available. Measurements of water levels in the basins are performed to check the current supply and are used to determine when artificial replenishment is needed. The remainder of this section describes WRD's management of groundwater production and water levels in the CWCB.

3.1 GROUNDWATER PRODUCTION IN THE CENTRAL AND WEST COAST BASINS

Prior to the 1960s, groundwater production in the CWCB went relatively unchecked and continued to increase as the population increased. West Coast Basin pumping reached a maximum of 94,100 AF in 1952-53, and Central Basin pumping reached a maximum of 259,400 AF in 1955-56 (DWR, 1962). Pumping exceeded natural recharge, resulting in overdraft, declining water levels, loss of groundwater from storage, and seawater intrusion.

In the early 1960s, the State courts limited the amount of pumping in the CWCB to reduce the overdraft. The West Coast Basin adjudication was finalized in 1961 and capped production at 64,468.25 acre-feet/year (AFY). The Central Basin adjudication rights were set at 271,650 AFY, although the Judgment set a lower Allowed Pumping Allocation (APA) of 217,367 AFY. The total amount that can be pumped from both basins is currently 281,835 AFY.

During emergency or drought conditions, WRD can also allow an additional 27,000 AF

of extractions (17,000 AF for Central Basin and 10,000 AF for West Coast Basin) for a four-month period. This provision has yet to be exercised but offers the potential use of an additional 7.8% of groundwater for Central Basin and 15% of groundwater for West Coast Basin pumpers.

The adjudicated amounts were set higher than the natural replenishment of the CWCB. WRD was created in 1959 to manage this deficiency through artificial replenishment. A replenishment assessment is placed on production to collect the funds necessary to purchase the supplemental replenishment water.

Under the terms of the Water Replenishment Districts Act, each groundwater producer in the CWCB must submit a report to the District summarizing their production activities (monthly reports for large producers, quarterly reports for small producers). The information in these reports is the basis from which each producer pays the replenishment assessment. WRD then forwards these production data to the DWR, the court-appointed Watermaster, in connection with the adjudication of the CWCB.

With few exceptions, meters installed and maintained by the individual producers measure groundwater production throughout the basins. Through periodic testing, both WRD and Watermaster verify the accuracy of individual meters and order corrective measures when necessary. The production of the few wells that are not metered is estimated on the basis of electrical energy consumed by individual pump motors, duty of water, or other reasonable means.

During WY 2004-2005, groundwater production in the CWCB was 229,908 AF, of which 188,673 AF occurred in the Central Basin and 41,235 AF occurred in the West Coast Basin. This represents a 7.4% decrease from the previous year. The five-year averaged production amount is 243,818 AF (WY 2000-01 through 2004-05). **Table 3.1** presents historical groundwater production quantities for the CWCB. **Figure 3.1** illustrates the levels of production throughout the CWCB during the 2004-2005 Water Year. Only a brief three consecutive year period, WY's 1992-93, 1993-94, and 1994-95

recorded lower groundwater production than 2004-05.

WRD's In-Lieu Replenishment Program, which replaces groundwater pumping with the use of imported water to reduce the overdraft of the basins, was suspended in 2003-04 to evaluate its effectiveness. For 2004-05, the Board approved a limited scale In-Lieu Program of 10,303 AF which was mostly utilized. Another 10,303 AF was approved for In-Lieu replenishment for 2005-06

3.2 GROUNDWATER LEVELS AND CHANGE IN STORAGE

Groundwater levels in the CWCB are tracked by WRD through the collection of water level measurements in production wells and monitoring wells. Automatic datalogging equipment are installed in selected monitoring wells to collect water levels up to four times per day to capture the daily and seasonal changes in water levels due to local and regional pumping. WRD staff visit these and other monitoring wells at least four times per year to collect manual readings and to download the dataloggers. Staff also obtain records from other entities including pumpers, DWR, and LACDPW, who regularly collect water level data from wells. These data are entered into WRD's GIS for storage and analyses. Contour maps and hydrographs are prepared to illustrate the current and historical groundwater levels in the basins. The change in groundwater storage is determined based on water level changes over the year.

3.2.1 Contour Maps

Groundwater elevation contour maps show the elevation of the water surface (potentiometric surface) in the aquifer system at a given period of time, typically spring or fall. These maps are used to determine groundwater flow directions and hydraulic gradients, identify areas of recharge and discharge, identify potential pathways for seawater intrusion, and calculate the changes in water levels and groundwater storage from one year to the next.

WRD has prepared contour maps representing the "Deep Aquifer System", which includes the San Pedro Formation aquifers (Lynwood/400-Foot Gravel, Silverado, and Sunnyside/Lower San Pedro). **Figures 3.2 and 3.3** are groundwater elevation contour maps for Spring and Fall 2005, respectively. Based on these maps, groundwater levels are highest in the northeastern corner of the Montebello Forebay, where Main San Gabriel Basin groundwater flows into the Central Basin and artificial recharge is performed. Groundwater levels are lowest in several areas, including Long Beach near the city's airport and in the West Coast Basin along the Newport-Inglewood uplift in the City of Gardena. Groundwater flow in the basins moves from recharge or high elevation areas to discharge or low elevation areas. In the Central Basin, groundwater generally moves in a southwesterly direction away from the Montebello Forebay recharge area, and then splits to flow both in a southerly direction toward Long Beach and a westerly direction toward Huntington Park and Los Angeles. In the West Coast Basin, groundwater generally moves in an easterly direction away from the West Coast Barrier. Based on observed water levels the Newport-Inglewood uplift and the Charnock Fault act as partial barriers to groundwater flow in the CWCB.

In addition to the relatively high summer water demands, MWD's Seasonal Storage Program provides some pumpers with an incentive to pump more groundwater from May through September, and less from October through April. **Figure 3.4** illustrates the monthly pumping amounts for WY 2004-2005. As shown in the figure, pumping in the West Coast Basin does not fluctuate seasonally as much as in the Central Basin. Between October 2004 and April 2005, production in the Central Basin averaged 15,723 AF/month and in the West Coast Basin 3,436 AF/month. However, between May 2005 and September 2005, Central Basin pumping averaged 18,639 AF/month and in the West Coast Basin 3,334 AF/month. The result of this unsteady seasonal pumping causes groundwater levels to vary significantly from spring to fall, especially in the confined Central Basin aquifers. **Figure 3.5** is a map showing the difference in water levels between Spring and Fall 2005 generally caused by this seasonal pumping. The biggest impact over the past water year was in the Long Beach area along the Newport-Inglewood Uplift, where Fall water levels are up to 69 feet lower than Spring water

levels. Less dramatic seasonal decreases were observed in other areas of the Central Basin. In the West Coast Basin waster levels were stable or increased slightly over the entire basin during the spring to fall 2005 period.

The change in water levels over the course of the year are shown on **Figure 3.6**, which is a water level change map between Fall 2004 and Fall 2005 for the upper San Pedro Formation aquifers (main production aquifers). As shown in the figure, water level changes in the Central Basin ranged from a 20-40 foot increase in the Long Beach area of the Central basin along the Newport-Inglewood Uplift, to areas showing no significant change northwest along the Baldwin Hills. Over most of the Central Basin water levels increased. The nearly basinwide rise is attributed primarily to the near record rainfall, record conservation of local water (stormwater), and reduced groundwater production. In the West Coast Basin water levels increased slightly or did not change significantly. The relative stability in the West Coast Basin is attributed to a well-managed artificial replenishment program via the West Coast Barrier and the Dominguez Gap Barrier, and that inflows generally equaled outflows in the upper San Pedro Formation aquifers.

3.2.2 Hydrographs

Hydrographs show the changes in water levels in wells over time. WRD uses hydrographs to evaluate basin storage, to determine when to purchase replenishment water, for drought preparedness, and to observe how the basins and aquifers respond to both seasonal and long-term recharge and discharge events.

Figures 3.7 through 3.10 are long-term hydrographs of key wells used in the District's annual Engineering Survey and Report that show water levels dating back to the 1930s and 1940s in the Montebello Forebay, Los Angeles Forebay, Central Basin Pressure Area, and West Coast Basin, respectively. **Figure 3.2** shows the locations of these key wells. The long-term key well hydrographs illustrate the general history of groundwater conditions in the CWCB: 1) Water levels declined steadily in the 1940s and 1950s due to groundwater overdraft, causing seawater intrusion and significant removal of groundwater from storage; 2) The severe overdraft condition led to the adjudication of

the CWCB in the early 1960s, and the formation of WRD to purchase and deliver artificial replenishment water for the spreading grounds, seawater barrier wells, and through in-lieu replenishment; 3) Reduction in pumping and artificial replenishment caused groundwater levels to rise in the CWCB (although not to their historic highs), allowing a return of groundwater to storage; and 4) Through the early to late 1990s, water levels remained relatively stable, but declined in the Montebello Forebay and Central Basin Pressure Area from 1999-2004, rebounding somewhat over the past year. Water levels in the Los Angeles Forebay have remained relatively stable at approximately 20 feet below sealevel over the past five years. Seasonal variations due to MWD's seasonal storage program have produced water level fluctuations exceeding 100 feet some years in the confined aquifers between spring and fall, such as is illustrated in the Long Beach area **(Figure 3.9)**. In the West Coast Basin, water levels key wells have increased somewhat over the past 5 years in the Dominguez Gap area due to increased injection to the barrier. In the central portion of the West Coast Basin water levels have remained relatively stable at about 25 feet below sea level over the past 20 years **(Figure 3.10)**.

Annual hydrographs are also used to obtain a more detailed picture of aquifer-specific water level changes over the Water Year. The data for these annual hydrographs are collected from WRD's nested monitoring wells that were constructed by the USGS. **Figure 1.3** shows the locations of WRD's nested monitoring wells. **Table 3.2** presents the manual groundwater elevation measurements collected from nested monitoring wells during Water Year 2004-2005. **Figures 3.11 through 3.14** are annual hydrographs of selected WRD nested monitoring wells showing data for WY 2004-2005. These data demonstrate the elevation differences between individual aquifers at each nested well location. The differences in elevation are caused primarily by the thickness and hydraulic conductivity of aquitards (if any) that separate the aquifers, the amount and depth of pumping, and the proximity to recharge sources. Information from selected monitoring wells is presented below:

Figure 3.11 – Rio Hondo #1: This nested well is located in the Montebello Forebay in the City of Pico Rivera at the southeast corner of the Rio Hondo Spreading Grounds. It has six individual wells (zones) screened in the Gardena, Lynwood, Silverado, and Sunnyside (three different zones) aquifers from depths of 160 feet below ground surface (bgs) to 1,130 feet bgs. In WY 2004-2005, water levels in Zone 4, representing the Silverado Aquifer, varied about 33 feet throughout the year, from an elevation low of 49 feet (mean sea level, msl) in September 2004 to an elevation high of about 84 feet (msl) in May 2005. All six zones generally follow the same trend throughout the year, with lows in the fall and highs in the, consistent with natural and artificial recharge patterns. With the exceptions of Zones 2 and 3 (both in the Sunnyside aquifer) which have nearly identical elevation heads throughout the year, there are several feet of vertical head differences between aquifers. Elevation heads are lowest in Zone 4, the Silverado Aquifer, suggesting that this aquifer is the most heavily pumped in the area. Because it has the lowest head, it should be expected to receive a portion of recharge waters (leakage) from aquifers above and below.

Figure 3.12 - Huntington Park #1: This nested well is located in the Los Angeles Forebay in the City of Huntington Park southeast of the intersection of Slauson Avenue and Alameda Street. It has 5 individual wells (zones) screened in the Gaspur, Exposition, Gage, Jefferson, and Silverado Aquifers, from depths of 134 feet bgs to 910 feet bgs. Only 4 zones are shown on the Figure because the shallowest well (screened from 114 feet to 134 feet in the Gaspur Aquifer) is dry, and therefore no water elevations can be shown on the graph. In WY 2004-2005, water levels in Zone 1, representing the Silverado Aquifer, varied about 7 feet throughout the year, from an elevation low of 36 feet below sea level in October 2004 to an elevation high of about 29 feet below sea level during the fall of 2005. Water levels of the deepest 3 zones generally followed the same trend throughout the year, with lows in the late summer and fall and highs in the winter and spring, consistent with natural recharge pattern. Water levels in Zone 4, the Exposition Aquifer, had only relatively minor fluctuations throughout the year, and occur at elevations from 46 to 54 feet higher than the deeper zones, suggesting little interconnectivity with the lower aquifers.

Figure 3.13 - Long Beach #1: This nested well is located in the Central Basin Pressure Area in the City of Long Beach, about a half mile south of the intersection of the 605 Freeway and Willow Street. It has 6 individual wells (zones) screened in the Artesia, Gage, Lynwood, Silverado and Sunnyside (2 zones) Aquifers, with depths ranging from 175 feet bgs to 1,450 feet bgs. In WY 2004-2005, water levels in Zone 3, representing the Silverado Aquifer, varied about 67 feet throughout the year, from an elevation low of about 82 feet below sea level in October 2004 to an elevation low of about 15 feet below sea level in April 2005. The large variation is due to the seasonal pumping patterns and confined aquifer conditions previously discussed. Water levels of the six zones generally followed the same trend throughout the year, with lows in the late summer and fall and highs in Spring. An abrupt decrease in water levels began in late April to early May as seasonal pumping commenced. A similar rebounding effect is expected in October when pumping is reduced. Elevation head is lowest in Zone 3, the Silverado Aquifer, suggesting that this aquifer is the most heavily pumped in the area.

Figure 3.14 - Carson #1: This nested well is located in the West Coast Basin in the City of Carson, about 1.5 miles northwest of the intersection of the 405 Freeway and Alameda Street. It has 4 individual wells (zones) screened in the Gage, Lynwood, Silverado, and Sunnyside Aquifers from depths of 270 feet bgs to 1,110 feet bgs. In WY 2004-2005, water levels in Zone 2, representing the Silverado Aquifer, varied about 6 feet throughout the year, from a low of about 57 feet below sea level in October 2004 to an elevation high of 51 feet below sea level in October 2005. Water levels in Zones 1 and 2 track very similarly throughout the year, as do Zones 3 and 4. A 36-foot difference in groundwater elevation between the upper two zones and lower two zones suggests that a significant aquitard exists between them.

3.2.3 Change In Storage

Groundwater enters the CWCB through natural and artificial replenishment, and leaves primarily through pumping. If the amount entering the basin equals the amount leaving, then water levels remain relatively unchanged and the basin is at "steady state". When

the amount of groundwater entering exceeds the amount leaving, water levels rise and there is an increase in the amount of groundwater in storage. Conversely, when groundwater leaving the basins exceeds the amount entering, water levels drop and the amount in storage is reduced.

The change in groundwater storage over the course of a Water Year can be determined by calculating water level changes and multiplying those values by the aquifers' storage coefficients. Water level changes were obtained from WRD's nested monitoring wells, which have isolated screens in each of the four major aquifer systems in the CWCB (Gaspur, Gage/Gardena, Lynwood/Silverado, and Sunnyside/Lower San Pedro). The water level changes were brought into the GIS and converted into grided surfaces so that they could be multiplied by the storage coefficient values determined by the USGS in their calibrated computer model of the basins (Reichard et al, 2003). Storage changes are relatively small in the deeper confined aquifers because they are fully saturated and storage coefficients are generally small (averaging about 0.0005). The most significant storage change occurs in the forebay areas, which have unconfined conditions with specific yield values from about 0.075 to 0.15. Based on the calculation, approximately 89,100 AF of water was added to storage in the CWCB during the WY 2004-2005. This was the first year of water level increases and storage gain following five years of drought conditions. Nearly 200,000 acre-feet were lost from storage since the 1997-1998 Water Wear. The result of this past Water Year's reversal can be seen on the change in water level map (Figure 3.6). In the forebays, water levels increased about 20 feet (Montebello Forebay) and 5 feet (Los Angeles Forebay) were observed.

SECTION 4
GROUNDWATER QUALITY

This section discusses the vertical and horizontal distribution of several key water quality parameters based on data from WRD's monitoring wells for Water Year 2004-2005 and purveyor's production wells for Water Years 2002-2005. Semi-annual groundwater samples from nested wells were submitted to a DHS-certified laboratory for analytical testing for general water quality constituents, known or suspected contaminants, and special interest constituents. Water quality data for production wells were provided by the DHS based on results submitted over the past three years by purveyors for their Title 22 compliance. **Figures 4.1 through 4.32** are maps which present water quality data for key parameters and special interest constituents in the WRD nested monitoring wells and production wells in the CWCB. The figures present the maximum values for data where more than one result is available over the time frame. **Table 1.1** presents well construction information and aquifer designations for WRD wells. **Table 4.1** categorizes groundwater at the WRD wells into major mineral water quality groups. **Table 4.2** lists the water quality analytical results alphabetically by well location for the wells in the Central Basin during WY 2004-2005. **Table 4.3** lists the water quality analytical results alphabetically by well location for the wells in the West Coast Basin during WY 2004-2005.

4.1 MAJOR MINERAL CHARACTERISTICS OF GROUNDWATER IN THE CENTRAL AND WEST COAST BASINS

Major minerals data obtained from laboratory analyses were used to characterize groundwater from discrete vertical zones of each WRD well (**Table 4.1**). Research by the USGS has provided three distinct groupings of groundwater compositions. Group A groundwater is typically calcium bicarbonate or calcium bicarbonate/sulfate dominant. Group B groundwater has a typically calcium-sodium bicarbonate or sodium bicarbonate character. Group C has a sodium chloride character. A few of the WRD wells yield

groundwater samples which do not fall into one of the three major groups and are grouped separately.

Groundwater from Group A likely represents recent recharge water containing a significant percentage of imported water. Groundwater from Group B represents older native groundwater replenished by natural local recharge. Groundwater from Group C represents groundwater impacted by seawater intrusion or connate saline brines. **Table 4.1** lists the groundwater group for each WRD nested monitoring well sampled during WY 2004-2005. Comparison of groundwater groups with well locations indicates that, in general, Group A groundwater is found at and immediately downgradient from the Montebello Forebay Spreading Grounds in all but the deepest zones. Group B groundwater is found farther down the flow path of the Central Basin and inland of the salt water wedge and injected water in the West Coast Basin. Group C water is generally found near the coastlines. Several wells, grouped as "Other" on **Table 4.1**, exhibit a chemical character range different from Group A, B, and C ranges and represent unique waters not characteristic of the dominant flow systems in the basins. The USGS is currently conducting trace element isotope analyses of water from these wells to identify their hydrogeologic source(s).

The major mineral compositions of water from the WRD nested monitoring wells sampled this Water Year have not changed substantially from previous years. It is expected that continued analysis will show gradual changes in major mineral compositions over time, as older native water is extracted from the basins and replaced by younger artificially replenished water.

4.2 TOTAL DISSOLVED SOLIDS (TDS)

TDS is a measure of the total mineralization of water and is indicative of general water quality. In general, the higher the TDS, the less desirable a given water supply is for beneficial uses. The Secondary MCL for TDS ranges from 500 milligrams per liter (mg/L), which is the recommended level, to 1,500 mg/L, which is the upper limit allowed for short-term use.

WRD nested monitoring well data for WY 2004-2005 indicate relatively low TDS concentrations for groundwater in the deeper producing aquifers of the Central Basin (**Figure 4.1**). TDS concentrations in the Central Basin ranged from 170 mg/L in Lakewood #1 zone 1, to 2,770 mg/L in Whittier #1 zone 1. In the Central Basin, Silverado Aquifer zones in 16 out of 22 WRD nested monitoring wells had very low TDS concentrations, below 500 mg/L. The Silverado aquifer zones in 21 out of 22 Central Basin wells tested contained less than the DHS upper limit for TDS of 1,000 mg/L. Generally, TDS concentrations above 1000 mg/L were limited to localized very deep or very shallow zones of Inglewood #2, Long Beach #1, Long Beach #2, Montebello #1, Whittier #1, and Whittier Narrows #1.

In contrast, West Coast Basin nested monitoring well data show generally higher TDS concentrations. TDS in WRD nested monitoring wells in the West Coast Basin ranged from 150 mg/L in Gardena #1 zone 1, to 13,600 mg/L in PM-4 Mariner zone 2. Only the most inland nested monitoring wells, Carson #1, Carson #2, Gardena #1, and Gardena #2 indicate TDS values below 500 mg/L consistently for zones below the shallowest. Wilmington #1 and Wilmington #2, located near the Dominguez Gap Barrier have significantly high TDS values, each with elevated TDS in multiple zones, including Silverado aquifer zones. Many zones of the Inglewood #1, Long Beach #8, and Lomita #1 nested monitoring wells exceed 750 mg/L with one or more zones greater than 1,000 mg/L.

Figure 4.2 presents DHS water quality data for TDS in production wells across the CWCB during WYs 2002-2005. In the Central Basin, TDS generally ranged between 250 and 750 mg/L over most of the basin. In a localized area along the San Gabriel River in the general vicinity of and downgradient of the Rio Hondo and San Gabriel River Spreading Grounds, many wells had TDS concentrations between 500 and 750 mg/L. A few wells in this area contained TDS in excess of 750 mg/L. Another localized area in the northernmost portion of the Central Basin shows a grouping of production wells between 500 and 750 mg/L. Data from many of the production wells in

the southernmost portion of the Central Basin indicated TDS less than 250 mg/L.

Data from West Coast Basin wells indicate that most wells in production had TDS concentrations below 750 mg/L. Several production wells located close to the coast in the Hawthorne/Torrance areas had TDS concentrations above 750 mg/L.

4.3 IRON

Typically, iron occurs naturally in groundwater. It is also leached from minerals or steel pipes as rust. Small concentrations of iron in water can affect the water's suitability for domestic or industrial purposes. The Secondary MCL for iron in drinking water is 0.3 mg/L because iron in water stains plumbing fixtures and clothing, incrusts well screens, and clogs pipes and may impart a salty taste. It is considered an essential nutrient, important for human health, and does not pose significant health effects except in special cases. Some industrial processes cannot tolerate more than 0.1 mg/L iron.

Dissolved iron in groundwater has historically been a water quality problem in portions of the CWCB. An abundant source of iron is present in the minerals making up the aquifers of the basins. The presence of dissolved iron (that is, iron dissolving from minerals into the groundwater) is controlled by a variety of geochemical factors discussed at the end of this section. In the Central Basin, iron in nested monitoring wells (**Figure 4.3**) ranged from less than the detection limit (numerous wells) to 8.4 mg/L (Whittier Narrows, zone 1). Iron was detected below the MCL in Silverado zones of 8 out of 22 nested wells. In zones above and below the Silverado, iron was detected below the MCL in 19 out of the 22 Central Basin wells. Iron was detected above the MCL in only one Silverado zone (Pico #1, zone 3), and in only three wells above or below the Silverado (Inglewood #2, zones 1 and 2; Whittier #1, zones 1 and 2; and Whittier Narrows #1, zone 1).

In the West Coast Basin elevated iron occurs locally. Iron concentrations ranged from less than the detection limit (numerous wells) to 1.2 mg/L (Inglewood #1, zone 1). Iron is generally detected in one or more zones at all 15 well locations at concentrations below

the MCL. One well in the West Coast Basin had an iron concentration in the Silverado exceeding the MCL (Inglewood #1, zone 1). Four wells had iron concentrations above the MCL in zones above or below the Silverado.

Figure 4.4 presents DHS water quality data for iron in production wells across the CWCB during WYs 2002-2005. The data show elevated iron concentrations in many production wells throughout the CWCB and many purveyors opt to treat groundwater to remove the iron. There does not appear to be a distinct pattern to the occurrence of elevated iron. Production wells exhibiting high iron concentrations appear in and around many with non-detectable iron.

Data from DHS for the West Coast Basin indicate roughly one-third of production wells, all located in the northwestern portion of the Basin, have iron concentrations exceeding the secondary MCL. Production wells in the southern and western portions of the West Coast Basin have iron concentrations below the MCL.

Although a definitive source cannot be identified for the various elevated iron concentrations described above, some general geochemical relationships for dissolved iron in groundwater may apply to the iron distribution patterns. First, dissolved iron tends to form under reducing groundwater conditions. Groundwater having a pH value between 6 and 8 can be sufficiently reducing to retain as much as 50 mg/L of dissolved ferrous iron at equilibrium, when bicarbonate activity does not exceed 61 mg/L (Hem, 1992). Second, iron is a common component of many igneous rocks and is found in trace amounts in virtually all sediments and sedimentary rocks—therefore, abundant natural sources of iron are present throughout the CWCB and under specific geochemical conditions, the natural iron in the sediments can dissolve into the groundwater. Third, water may dissolve any subsurface iron casing, piping, etc. (the main materials of older production wells and pumps, and distribution systems), thus production wells and distribution piping may contribute iron to water supplies.

4.4 MANGANESE

Manganese, also naturally occurring, is objectionable in water in the same general way as iron. Stains caused by manganese are black and are more unsightly and harder to remove than those caused by iron. The Secondary MCL for manganese is 50 micrograms per liter (µg/L). Like iron, it is considered an essential nutrient for human health.

Manganese concentrations in the WRD nested monitoring wells exhibit widespread vertical and horizontal variations across the CWCB. Like iron, manganese is a naturally occurring element in aquifer materials and groundwater. In the Central Basin (**Figure 4.5**), manganese ranges from below the detection limit (numerous wells) to 1,300 µg/L (Pico #2 zone 1). In the southern portion of the basin, elevated manganese typically occurs in shallower aquifers above the Silverado producing zones. In the northern portion of the Central Basin, manganese is present in shallow zones, the Silverado Aquifer, and the deeper zones. Only two nested monitoring wells in the Central Basin had Manganese concentrations exceeding the MCL in the Silverado including Montebello #1, and Whittier #1.

In the West Coast Basin, manganese concentrations in nested monitoring wells ranged from below the detection limit (numerous wells) up to 1,200 µg/L (PM-4 Mariner zone 2). In the southern portion of the West Coast Basin, like iron, elevated manganese concentrations were limited to aquifer zones above the Silverado. In the western and northern portions of the West Coast Basin, manganese concentrations typically exceed the MCL in most zones with only a few zones containing manganese below the MCL.

Figure 4.6 presents DHS water quality data for manganese in production wells across the CWCB during WYs 2002-2005. In the Central Basin data show a large number of wells having elevated manganese concentrations with 57 out of 269 production wells exceeding the MCL. The production wells with elevated manganese tend to be widespread, but there does appear to be an area south of the Montebello Forebay Spreading Grounds and a second area at the southern end of the Central Basin where manganese is consistently

below the MCL. In the West Coast Basin production wells 17 out of 30 production wells tested had concentrations of manganese exceeding the MCL. The wells tend to be somewhat clustered in the northern half of the basin.

4.5 NITRATE

DHS Primary MCLs limit two forms of nitrogen, nitrite and nitrate, in drinking water. Nitrate cannot exceed concentrations of 45 mg/L (measured as Nitrate), corresponding to 10 mg/L as Nitrogen. Nitrite is limited to 1 mg/L as Nitrogen. The combined total of nitrite and nitrate cannot exceed 10 mg/L. These constituents are of concern because they can cause anoxia in infants. When consumed in excess of these limits, they reduce the uptake of oxygen causing shortness of breath, lethargy, and a bluish color. Continued exposure to these constituents in excess of the limits can be fatal.

Nitrate concentrations in groundwater are a concern because their presence indicates that a degree of contamination has occurred due to the degradation of organic matter. Native groundwater typically does not contain nitrate. It is usually introduced into groundwater from agricultural practices such as fertilizing crops and leaching of animal wastes, and is also formed when recycled water is percolated through the soil during recharge. Typically, organic nitrogen and ammonia are the initial byproducts of the decomposition of human or animal wastes. Upon oxidation the organic nitrogen and ammonia are converted first to nitrite and then nitrate ions in the subsurface. A portion of the nitrite and nitrate are converted to nitrogen gas and hence are returned to the atmosphere. Nitrate itself is not harmful; however, it can be converted back to nitrite.

Figure 4.7 presents nitrate (as nitrogen) water quality data for nested monitoring wells in the CWCB during WY 2004-2005. In the Central Basin, nitrate (as nitrogen) concentrations ranged from below the detection limit (numerous wells) to 12 mg/L (Los Angeles #1 zone 5). Nested monitoring wells in the vicinity of the Montebello Forebay Spreading Grounds indicate concentrations of nitrate slightly above detection limits but below the MCL. Rio Hondo #1 and Pico #2 show detectable concentrations of nitrate from the shallowest zones down to Zones 4 and 1 respectively. South Gate #1, Downey

#1, and Cerritos #2 show detectable concentrations in one or more of the middle zones, which are directly down the flow path from the spreading grounds, however Silverado and deeper zones of nested wells more distant from the spreading grounds have no detectable concentrations of nitrate. The detectable but relatively low concentrations of nitrate at and near the spreading grounds may be due to the local water and/or recycled water component of recharge at the spreading grounds. Nitrate is also observed in shallow zones at Los Angeles #1, Huntington Park #1, Commerce #1, Montebello #1, Pico #1, Whittier #1, and La Mirada #1. These shallow occurrences of nitrate, away from the spreading grounds, may be attributed to local surface recharge from former agricultural activities prior to the extensive land development that began in the 1950s.

In the West Coast Basin nested monitoring wells, nitrate concentrations ranged from below the detection limit (numerous wells) to 12 mg/L (Gardena #1). Concentrations exceeding the nitrate MCL included the shallowest zone of Inglewood #1 and Gardena #1. A detection below the MCL in the shallowest zone at Hawthorne #1 was observed. As in the Central Basin, shallow zone occurrences of nitrate with deeper zones below detection limits may be attributable to local surface recharge from former agricultural activities prior to the extensive land development that began in the 1950s.

Figure 4.8 presents DHS water quality data for nitrate in production wells across the CWCB during WYs 2002-2005. Detectable concentrations below the MCL were generally located in the vicinity and downgradient of the San Gabriel River and Rio Hondo Spreading Grounds of the Montebello Forebay, and in several scattered locations in the northwestern portion of the Central Basin. Production wells in the southern portion of the Central Basin and all of the West Coast Basin show relatively low nitrate concentrations below 3 mg/L. The nitrate MCL was exceeded in one production well in the CWCB during the 2002-2005 period. This well is located in the northeastern portion of the Los Angeles Forebay near a cluster of wells with detectable nitrate. Like the nitrate observed in the nested monitoring wells nitrate in production wells may be attributable to local surface recharge from former agricultural activities prior to the extensive land development that began in the 1950s.

4.6 HARDNESS

For most municipal uses, hardness (a measure of calcium and magnesium ions that combine with carbonates to form a precipitate in water) is an important mineral characteristic of water. Some degree of hardness is considered to be beneficial to human health; studies suggest that it helps to lower cholesterol levels. Excessive hardness is undesirable because it results in increased consumption of cleaning products, scale on pipes, and other undesirable effects. There is no MCL for hardness, but generally waters are considered soft when it is less than 75 mg/L and very hard when greater than 300 mg/L.

Figure 4.9 presents water quality data for total hardness in WRD nested monitoring wells in the CWCB during WY 2004-2005. In the Central Basin total hardness ranged from 6.61 (Long Beach 1 zone 2) to 1,030 mg/L (Whittier #1 zone 1), while in the West Coast Basin, hardness ranged from 7.06 mg/L (Carson #2 zone 1) to 4,770 mg/L (PM-4 Mariner zone 2). In general, the deeper aquifers characterized as having older native groundwater in the southern portion of the Central Basin and locally in the West Coast Basin show low total hardness. Most other zones in both basins have moderate to high hardness.

Figure 4.10 presents DHS water quality data for total hardness in production wells in the CWCB during WYs 2002-2005. Groundwater in the West Coast Basin has moderate hardness. Production wells in the southern and western portions of the Central Basin show groundwater with low to moderate hardness. In the northern portion of the Central Basin, production wells show groundwater with generally moderate to high hardness.

4.7 SULFATE

Sulfate is generally not a water quality concern in the CWCB. In excess amounts, it can act as a laxative. DHS has established a Secondary MCL upper limit for sulfate at 500 mg/L. Sulfate is, however a very useful water quality constituent in the CWCB for use in tracking flow and observing travel times of artificial recharge water. Colorado

River water and recycled water used for recharge in CWCB have characteristically high sulfate concentrations while native groundwater and State Water Project water have relatively low sulfate concentrations.

Figure 4.11 presents water quality data for sulfate in WRD nested monitoring wells in the CWCB during WY 2004-2005. In the Central Basin sulfate ranged from below the detection limit (numerous wells) to 1,370 mg/L (Whittier #1 zone 1), while in the West Coast Basin sulfate ranged from below the detection limit (numerous wells) to 717 mg/L (PM-4 Mariner zone 2). In general the data indicate that the lowest sulfate concentrations are found in most of the deeper zones of the West Coast Basin and southern portion of the Central Basin. Again, these are areas characterized in previous sections as having characteristics representative of older native groundwater. The uppermost one or two zones in many of these wells typically show elevated sulfate concentrations, likely due to local surface recharge. In the northeast portion of the Central Basin, higher sulfate concentrations are observed in most zones primarily due to the relatively high sulfate in imported Colorado River water. Results show that Silverado zones at only two nested monitoring wells are impacted by sulfate greater than the MCL. These wells include Whittier #1, in an area of generally poor water quality, and PM-4 Mariner, which is impacted by sea water intrusion in the West Coast Basin.

Figure 4.12 presents DHS water quality data for sulfate in production wells in the CWCB during WYs 2002-2005. The production well data indicate patterns of sulfate concentrations similar to those observed in the deeper zones of WRD nested monitoring wells. Sulfate concentrations are generally low in the central and eastern areas of the West Coast Basin and southern portion of the Central Basin, and somewhat higher along the western margin of the West Coast Basin and in the northern portion of the Central Basin.

4.8 CHLORIDE

Chloride in reasonable concentrations is not harmful to human health. It is the characteristic constituent used to identify seawater intrusion. While recharge sources

contain moderate concentrations of chloride, these concentrations are well below the Secondary MCL upper limit for chloride of 500 mg/L. Water containing chloride concentrations above this level begins to taste salty. When the ratio of chloride to other anions such as sulfate and bicarbonate becomes high, there is a strong indication of seawater intrusion or possible industrial brine impact to groundwater.

Figure 4.13 presents water quality data for chloride in WRD nested monitoring wells in the CWCB during WY 2004-2005. In the Central Basin, chloride concentrations ranged from 5 mg/L (Downey #1 zone 1) to 669 mg/L (Montebello #1 zone 1). The Silverado aquifer zones of the Central Basin nested monitoring wells contain low to very low chloride concentrations, all below 250 mg/L. In the West Coast Basin, chloride ranged from 5.8 (Gardena #1 zone 1) to 6,180 mg/L (PM-4 Mariner zone 2). Chloride concentrations exceeded the MCL in the Silverado aquifer zones in five of the fifteen West Coast Basin nested wells, primarily due to seawater intrusion (Long Beach #8, Long Beach #3, Wilmington #1, Wilmington #2, and PM-4 Mariner) or from sources yet to be identified.

Figure 4.14 presents DHS water quality data for chloride in production wells in the CWCB during WYs 2002-2005. Chloride was not detected above its MCL in any of the Central Basin production wells. In the southern portion of the Central Basin, chloride concentrations in production wells were generally below 50 mg/L; while in the northeastern portion of the Central Basin, concentrations ranged from 50 to 100 mg/L. In the West Coast Basin, available DHS data indicate that one production well, on the west side of the Basin had a chloride concentration above the MCL. Several other production wells two to four miles inland from the coast show somewhat elevated chloride concentrations. Production wells further inland in the West Coast Basin have very low chloride concentrations.

4.9 TRICHLOROETHYLENE (TCE)

TCE is a solvent used in metal degreasing, textile processing, and dry cleaning. Because of its potential health effects, it has been classified as a probable human carcinogen. The

Primary MCL for TCE in drinking water is 5 µg /L. Its presence in groundwater likely originated from improper disposal practices. If present in water, it can be removed easily either by packed tower aeration or granular activated carbon treatment.

TCE was detected in five WRD nested monitoring well locations in the Central Basin and in three nested well locations in the West Coast Basin (**Figure 4.15**). In the Central Basin, TCE concentrations, ranged from below the detection limit (numerous wells) to 32 µg/L (Los Angeles #1 zone 5). Only two nested well locations, South Gate #1 and Whittier Narrows #1, contained a detectable TCE concentration in the Silverado Aquifer, but those concentrations were below the MCL. At the Whittier Narrows #1 nested well, TCE was detected at trace levels less than the MCL below the Silverado in zone 6. Four other locations (Los Angeles #1 zone 4, Huntington Park #1 zones 3 and 4, Commerce #1 Zone 5, and Downey #1 zones 5 and 6) had detections of TCE in zones above the Silverado Aquifer. The detections in Los Angeles #1 zones 4 and 5, and Huntington Park #1 Zone 3 were above the MCL.

In the West Coast Basin, TCE concentrations ranged from below the detection limit (numerous wells) to 18 µg/L (Hawthorne #1 zone 6). In the shallowest zone and deepest zone of Inglewood #1, and the shallowest zone of Hawthorne #1, TCE concentrations above the MCL were detected. In the shallowest zone at PM-3 Madrid, TCE was detected below the MCL. Trace levels of TCE less than the MCL were detected in the Silverado zone and the zone below at Westchester #1.

Figure 4.16 presents DHS water quality data for TCE in production wells across the CWCB during WYs 2002-2005. Over 300 wells were tested for TCE. The data show that over the past three years TCE has been detected in 62 production wells in the Central Basin. Fifteen detections were above the MCL. The production wells impacted by TCE are located in the northern portion of the Central Basin, most within or neat the Montebello and Los Angeles Forebay areas. In the West Coast Basin TCE was not detected in any production wells.

4.10 TETRACHLOROETHYLENE (PCE)

Perchloroethylene (also known as tetrachloroethylene, perc, perclene, and perchlor) is a solvent used heavily in the dry cleaning industry, as well as in metal degreasing and textile processing. Like TCE, PCE is a probable carcinogen. The Primary MCL for PCE in drinking water is 5 µg/L. Through improper disposal practices, PCE has contaminated many groundwater basins. Like TCE, PCE is easily removed using packed tower aeration or granular activated carbon treatment.

During WY 2004-2005, PCE (**Figure 4.17**) was detected at eight nested well locations in the Central Basin and one well in the West Coast Basin. In the Central Basin, PCE ranged from below the detection limit (numerous wells) to 8.3 µg/L (Pico #2 zone 3), all from nested wells within or near the vicinity of the Montebello and Los Angeles forebays. At well South Gate #1, PCE was detected above the MCL in the Silverado Aquifer. At Downey #1, South Gate #1, and Whittier Narrows #1, PCE was detected below the MCL in the Silverado Aquifer. South Gate #1 and Whittier Narrow #1 show PCE detected below the MCL in a zone below the Silverado Aquifer. At Huntington Park #1, PCE was detected below the MCL in zones 3 and 4, above the Silverado Aquifer. At Los Angeles #1, PCE was detected below the MCL in the two shallowest zones, both above the Silverado aquifer. At Pico #2, PCE was detected in 3 zones below the Silverado aquifer; above the MCL in zone 3 and below the MCL in zones 1 and 2. At Whitttier Narrows #1, PCE was detected in zones 3 and 4, below the Silverado at concentrations below the MCL.

In the West Coast Basin, PCE concentrations were below the detection limit in all nested monitoring wells except Inglewood #1. The shallowest zone at Inglewood #1 had 0.8 µg/L of PCE which is below the MCL. The deepest zone, below the Silverado aquifer, at Inglewood #1 contained 0.7 µg/L PCE, below the MCL.

Figure 4.18 presents DHS water quality data for PCE in production wells across the CWCB during WYs 2002-2005. In the Central Basin, PCE was detected in 68 production wells. Sixteen of the 68 wells exceeded the MCL for PCE. Production

wells with detectable PCE are primarily located within the vicinity of the Los Angeles and Montebello Forebays and extend out into the west-central portion of the Central Basin. PCE was not detected in production wells in the southern portion of the Central Basin. PCE was not detected in any production wells tested in the West Coast Basin during WYs 2002-2005.

4.11 SPECIAL INTEREST CONSTITUENTS

Several additional water quality constituents have been monitored and studied by WRD to address emerging water quality issues related to hazardous waste contamination, recycled water use in the CWCB, and proposed revisions to water quality regulations. Current special interest constituents include arsenic, chromium, MTBE, total organic carbon (TOC), apparent color, and perchlorate. Studies have included focused sampling of WRD nested monitoring wells and evaluation of DHS Title 22 Program data for the special interest constituents. The following subsections present the data collected for each of these constituents.

4.11.1 Arsenic

The Safe Drinking Water Act, as amended in 1996, requires the United States Environmental Protection Agency (EPA) to revise the existing drinking water standard for arsenic, which they have done. The DHS is required to establish a standard equal to or more stringent than the EPA standard. In establishing the new statewide standard, the DHS will consider not only possible adverse health effects from exposure to this constituent but also, as required by statute, technical, and economic feasibility. Studies have shown that treatment to remove arsenic to acceptable levels is technically feasible. However, the arsenic then becomes a potential hazardous waste. It is uncertain if arsenic residuals can be properly disposed of at acceptable costs.

EPA announced on October 31, 2001 that the arsenic standard will remain at 10 μg/L, as was originally announced on January 21, 2001. Three expert panel reviews were conducted on the health effects of arsenic, costs for compliance, and benefits associated with varying degrees of treatment, and were considered before EPA's announcement.

The current State standard is 50 µg/L. Because costs for small systems will be significant, EPA has indicated that they will provide assistance in funding and training, as well as research, to find new treatment technologies that will reduce costs of compliance. The date for compliance for all water systems was January 2006.

Health and Safety code Section 116361 required the DHS to adopt a new arsenic MCL by June 30, 2004 and required the Office of Environmental Health Hazard Assessment (OEHHA) to establish a new Public Health Goal (PHG) by December 31, 2002. Also, new language concerning the health effects of ingesting water with arsenic is required in Consumer Confidence Reports as of July 1, 2003. OEHHA announced the final PHG of 0.004 µg /L in April 2004. As part of the regulatory process, DHS is required to establish an MCL at a level as close as is technically and economically feasible to the PHG.

Arsenic is an element that occurs naturally in the earth's crust. Accordingly, there are natural sources of exposure. Natural sources of arsenic include weathering and erosion of rocks, deposition of arsenic in water bodies, and uptake of the metal by animals and plants. Consumption of food and water are the major sources of arsenic exposure for the majority of U.S. citizens. Over ninety percent of commercial arsenic is used as wood preservative in the form of chromate copper arsenate to prevent dry rot, fungi, molds, termites, and other pests. People may also be exposed from industrial applications, such as semiconductor manufacturing, petroleum refining, animal feed additives and herbicides. Arsenic is carcinogenic and also causes other health effects such as high blood pressure and diabetes.

Figure 4.19 presents arsenic water quality data for WRD nested monitoring wells during WY 2004-2005. In the Central Basin arsenic concentrations ranged from non-detectable (numerous wells) to 41 µg/L in the shallowest zone at Cerritos #1 zone 6. Arsenic concentrations greater than the revised Federal MCL in the Central Basin were found at 10 out of 22 wells. Arsenic concentrations exceeding the revised MCL in the Silverado aquifer zones were found only at Cerritos #1, located in the eastern portion of the District. Overall the distribution of arsenic appears to be similar to the distribution of

iron and manganese in the Central Basin with somewhat lower concentrations near the Forebays and higher concentrations away from the Montebello and Los Angeles Forebays.

In the West Coast Basin arsenic was not detected above the new MCL in the Silverado Aquifer. The deepest zone in Gardena #1, below the Silverado Aquifer, had an arsenic concentration of 105 µg/L.

Figure 4.20 presents DHS water quality data for arsenic in production wells across the CWCB during WYs 2002-2005. Nine production wells in the central and southeastern portion of the Central Basin contained arsenic concentrations above the revised MCL. Many other production wells at various locations in the Central Basin contained arsenic at concentrations between 5 and 10 µg/L. Arsenic did not exceed the revised MCL in any of the West Coast Basin production wells during WYs 2002- 2005.

4.11.2 Chromium

Chromium is a metal used in the manufacture of stainless steel, metal plating operations, and other applications. Chromium has the potential to contaminate groundwater from spills and leaking tanks. It comes in two basic forms: chromium 3 (trivalent) and chromium 6 (hexavalent) ions. Chromium 3 is a basic nutrient that is quite commonly ingested by adults in doses of 50 to 200 µg/day. Chromium 6 is an oxidized form of chromium 3 that is a known carcinogen when inhaled. This is based on occupational exposures in chromium plating and other related industries. It is unclear if ingestion of chromium 6 is harmful. The reduction of chromium 6 to chromium 3 that occurs from gastric juices during digestion is a key factor in determining the level of carcinogenicity of ingested chromium 6.

Currently the MCL for total (all forms of) chromium is 50 µg/L. In February 1999, OEHHA established a Public Health Goal for total chromium at 2.5 µg/L, based on a health protective level for chromium 6 at 0.2 µg/L and the assumption that 7 percent of total chromium in drinking water is chromium 6. In November 2001, OEHHA

announced that it rescinded this PHG. At their request earlier this year, a scientific panel convened by the University of California, known as the Chromate Toxicity Review Committee, reviewed the study that OEHHA originally used as a basis for their PHG and concluded in September 2001 that the data were flawed and should not be used for health risk assessment. At the request of both DHS and OEHHA, the National Toxicity Program of the National Institute of Environmental Health Sciences will perform a long-term health effects study on rodents to evaluate the potential carcinogenicity of ingested chromium 6. It was expected to be completed in 2005. DHS has added chromium 6 to its list of Unregulated Chemicals Requiring Monitoring (UCRM) in production wells.

Health and Safety Code Section 116365.5 required DHS to adopt a chromium 6 MCL by January 1, 2004. However, OEHHA has not yet issued a new draft chromium 6 PHG.

Figure 4.21 presents total chromium water quality data for WRD nested monitoring wells. In the Central Basin, only the two uppermost zones in the Los Angeles #1 nested well exceeded the MCL of 50 µg/L for total chromium. Trace levels of total chromium were detected in one or more zones of all other Central Basin nested wells. Total chromium was not detected above the MCL in the West Coast Basin. As in the Central Basin, trace levels of total chromium were detected in one or more zones of all nested wells in the West Coast Basin.

Figure 4.22 presents DHS water quality data for total chromium in production wells across the CWCB during WYs 2002-2005. No production wells in the Central Basin exceeded the MCL for total chromium. In the majority of production wells sampled in the Central Basin, total chromium was not detected. A total of 33 production wells in the Central Basin contained detectable total chromium below the MCL. Total chromium was not detected in any of the production wells tested in the West Coast Basin.

Figure 4.23 presents hexavalent chromium water quality data for WRD nested monitoring wells. Most WRD nested monitoring wells have been sampled twice for hexavalent chromium since early 1998. Most zones contained hexavalent chromium

below the Preliminary Health Goal of 0.2 µg/L. However, in the northern portion of the Central Basin, hexavalent chromium was detected at concentrations ranging from 0.2 to 30 µg/L. All of the detected concentrations were below the current MCL for total chromium and as discussed above an MCL has not been established for hexavalent chromium. In the Los Angeles #1, Huntington Park #1, Commerce #1, Downey #1, Rio Hondo #1, Pico #1, and Whittier #1 wells, hexavalent chromium was detected in zones above the Silverado Aquifer. In Los Angeles #1, South Gate #1, Downey #1, Rio Hondo #1, Pico #2, Cerritos #2, Norwalk #1, Long Beach #1, Long Beach #2, and Long Beach #6, hexavalent chromium was detected in zones within and/or below the Silverado Aquifer. In the West Coast Basin, hexavalent chromium was detected below the MCL for total chromium in the shallowest zones of Inglewood #1, Gardena #1, and Chandler #3. Hexavalent chromium below the MCL was detected in the lowest zones at Westchester #1, Long Beach #3, and Long Beach #8.

As new wells are added to the WRD nested monitoring well network, samples will be collected for hexavalent chromium analysis to update the special study results. WRD will report these updates in subsequent Regional Groundwater Monitoring Reports.

Figure 4.24 presents WYs 2002-2005 DHS water quality data for hexavalent chromium in production wells across the CWCB. Hexavalent chromium results have been reported in over 127 production wells in the Central Basin and West Coast Basins. Detections of hexavalent chromium were observed in 24 Central Basin wells, all below the MCL for total chromium. Hexavalent chromium was not detected in any of the West Coast Basin production wells.

4.11.3 Methyl Tert-Butyl Ether (MTBE)

Methyl tert(iary) butyl ether (MTBE) is a synthetic chemical added to gasoline to improve air quality as required by the Federal Clean Air Act. Limited quantities have been used in gasoline in California since the 1970s. In 1992, oil companies began using it extensively in California to meet reformulated gas requirements of the State Air Resources Board. Its use enables gasoline to burn more completely. However, MTBE

has been detected in groundwater and surface water throughout California from sources including leaking underground storage tanks, pipelines, and spills; and from emissions of boat engines into lakes and reservoirs. Animal tests have shown MTBE to be carcinogenic. Effective May 17, 2000, a primary MCL of 13 µg/L was established by DHS. A secondary standard of 5 µg/L was established in response to taste and odor concerns. Effective Janaury 1, 2004, the use of MTBE is banned. The most likely substitute for MTBE is ethanol. The production and distribution of ethanol, however, is problematic. There may not be an adequate supply source, and it cannot be delivered through pipelines. The State requested a waiver from the USEPA for oxygenates, and was denied. The State has filed suit requesting EPA to reconsider. On January 29, 2004, Governor Schwarzenegger submitted to USEPA another request for a waiver from oxygenate requirements.

Figure 4.25 presents MTBE water quality data for WRD nested monitoring wells during WY 2004-2005. MTBE was not detected in any of the WRD nested monitoring wells. MTBE will be watched closely in the future in WRD nested monitoring wells.

Figure 4.26 presents DHS water quality data for MTBE in production wells across the CWCB during WYs 2002-2005. In the Central Basin, MTBE was detected in three production wells. One production well, located in the Los Angeles Forebay, has been out of production since the MTBE was detected. The two other production wells are located in Pico Rivera along the San Gabriel River. The in these two wells was detected one time only. Twelve subsequent samplings have not detected MTBE. MTBE was not detected in any West Coast Basin production wells during the reporting period.

4.11.4 Total Organic Carbon

Total organic carbon (TOC) is the broadest measure of the concentration of organic molecules in water and is of interest because it gives an indication of the potential formation of disinfectant byproducts, some of which are harmful. TOC can be naturally occurring, result from domestic and commercial activities, or can be a product of wastewater treatment processes. While there is no MCL established for TOC, regulators

are generally concerned with TOC of wastewater origin as a measurable component of recycled water. Typically, wastewater that has been subjected to effective secondary treatment contains 5 to 15 mg/L of TOC. Advanced treatment can effectively lower the TOC concentration to less than 1 mg/L. Likewise, percolating water through the soil has also been proven to be an effective method in reducing TOC in reclaimed water. However, TOC in groundwater may also occur naturally and have no relation to wastewater. Studies indicate that the TOC measured in groundwater samples in both nested monitoring wells and production wells in the CWCB is naturally occurring in the aquifer systems and was derived from organic material and decaying vegetation either deposited with the aquifer sediments as the basins were filling or originally contained in imported water (AWWA, 2001).

Figure 4.27 presents TOC water quality data for WRD nested monitoring wells during WY 2004-2005. In the Central Basin, TOC was detected in multiple zones of all 22 nested monitoring wells. Where TOC is present, concentrations are typically below 1 mg/L and less frequently between 1 and 5 mg/L. The lower concentrations occur in the shallow and middle zones of the nested wells; higher concentrations of TOC are generally found in the deeper zones. Only five wells in the Central Basin have zones with TOC greater than 5 mg/L; including the four deepest zones at Long Beach #6, the deepest zone at Long Beach #2, the deepest two zones at Inglewood #2, the deepest zone at Whittier Narrows #1, and the deepest two zones sampled at Montebello #1. The deeper wells with TOC greater than 5 mg/L are likely to contain naturally occurring organic carbon, and not wastewater related organic carbon. In the West Coast Basin, TOC greater than 1 mg/L is present in one or more zones at all 15 nested monitoring wells tested, and at concentrations greater than 5 mg/L in one or more zones at six of the 15 West Coast Basin production wells tested.

Figure 4.28 presents limited DHS water quality data for TOC in production wells across the CWCB during WYs 2002-2005. During the three-year period only 55 wells were tested for TOC. Only 13 of the 55 wells tested below the detection limit for TOC. Most of the wells contained TOC at concentrations ranging from less than 1 mg/L to 5 mg/L

and most were spread across the CWCB.

4.11.5 Apparent Color

Apparent color in groundwater (colored groundwater) is not toxic or harmful; an MCL of 15 apparent color units (ACUs) has been established as an aesthetic standard. Colored groundwater results from colloidal organic particles suspended in the water that display colors ranging from pale yellow to a dark tea brown. There is an observed relationship between apparent color and TOC, especially in the higher concentration range. Colored groundwater can be effectively treated and served, however treatment is relatively expensive.

Figure 4.29 presents apparent color water quality data for WRD nested monitoring wells in the CWCB during WY 2004-2005. Apparent color is present above the MCL in the deepest zones of eighteen nested monitoring wells. Several nested wells have apparent color above the MCL in intermediate zones. Apparent color does not exceed the MCL in the uppermost zone in any nested monitoring wells tested. This relationship between apparent color and depth, along with the relationship between color and TOC, is probably due to an increase in the content of natural organic matter in the deeper sediments of the basins.

Figure 4.30 presents DHS water quality data for apparent color in production wells across the CWCB during WYs 2002-2005. These data indicate that colored groundwater is not a widespread, but only a localized problem in the basins. Most production wells tested below the MCL. Locally in the Long Beach, Inglewood, La Mirada/Norwalk, Pico Rivera and Los Angeles areas, several wells did test above the MCL for apparent color; some water purveyors in those areas have treatment systems operating to remove color from the groundwater.

4.11.6 Perchlorate

Perchlorate is the primary ingredient in rockets, missiles, road flares, and fireworks. It also has widespread use in air bag inflators, electronics, electroplating, lubricating oils,

and the production of paints and enamels. Studies show that perchlorate can impact the proper functioning of the thyroid gland by inhibiting the uptake of iodide, and can cause a decrease in the production of hormones necessary for normal growth, development, and metabolism.

DHS established an action level of 18 µg/L in 1997, but revised it to 4 µg/L on January 18, 2002 based on the results of more current studies. OEHHA proposed a draft PHG of 2 to 6 µg/L in December 2002. On March 12, 2004, OEHHA issued a final PHG of 6 µg/L. DHS also revised the action level to 6 µg/L. Effective January 1, 2005, this is now referenced as the notification level. Health and Safety Code Section 116275 required DHS to adopt a MCL for perchlorate by January 1, 2004. DHS's MCL will be based on the final PHG with consideration given to technical and economic feasibility. A factor in the potential revision of the final PHG is an ongoing review by the National Academy of Sciences on adverse health effects of perchlorate, which was scheduled for completion in late 2004. OEHHA has indicated that they will consider revising the PHG if there are conflicts.

Figure 4.31 presents perchlorate water quality data for WRD nested monitoring wells in the CWCB during 1998-2005. The longer time period was used because perchlorate is only tested the first two sampling events at a new nested monitoring well and not tested twice per year as are most other constituents in this report. Perchlorate has been detected above the SAL in two Central Basin nested monitoring wells. At Huntington Park #1, perchlorate was detected above the SAL above the Silverado Aquifer. At Downey #1, perchlorate was detected above the SAL within the Silverado Aquifer. Perchlorate is present below the SAL in three other Central Basin nested monitoring wells including Commerce #1, South Gate #1, and Los Angeles #1. In the West Coast Basin, perchlorate was detected below the SAL at three wells; the shallowest zones of Lomita #1, Chandler #3, and Gardena #1.

Figure 4.32 presents DHS water quality data for perchlorate in production wells across the CWCB during WYs 2002-2005. These data indicate perchlorate is not a widespread

problem in the basins. Most production wells tested below the detection limits. Locally, one production well in Norwalk, one in Downey, and one in the Los Angeles Forebay had detectable perchlorate at concentrations below the SAL.

4.12 CONTAMINANT SOURCE IDENTIFICATION

The WRD service area contains one of the world's largest and most diverse industrial bases. Consequently, many thousands of potential groundwater contamination sources exist within District boundaries. Examples of contamination sources range from spills while changing motor oil, to leaks from underground storage tanks at gas stations, to pipeline leaks from refineries and petrochemical plants. Such potential contamination sources may pose a threat to the deeper water-supply aquifers.

During WY 2003-2004, the District initiated a Contaminated Sites Program to identify and prioritize threats to CWCB groundwater. WRD staff conducted weekly visits to the DTSC and RWQCB-LA offices and local EPA repositories, to review case files on their highest-priority groundwater contamination sites (as identified by DTSC, RWQCB and EPA case managers). Staff generated concise summaries of these case files. During WY 2004-2005, staff developed a matrix to evaluate these case files, using weighted parameters such as depth to water-supply aquifers, distance from production wells, and degree of groundwater contamination. **Table 4.4** lists these priority contaminated sites, the cities where the sites are located, and the lead regulatory agency. **Figure 4.33** shows the locations of these sites in the District.

As part of the Contaminated Sites Program, several meetings were held among the following agencies to address this contamination on a regional basis: WRD, EPA, USGS, RWQCB, DTSC, and the City of Santa Fe Springs. A Memorandum of Understanding (MOU) was prepared and signed the agencies. This MOU set forth a basic understanding that each agency will work together cooperatively and that WRD will serve as a clearinghouse for the data being collected.

SECTION 5
SUMMARY OF FINDINGS

This Regional Groundwater Monitoring Report was prepared by WRD to report on the groundwater conditions in the CWCB during the WY 2004-2005. A summary of findings is presented below.

- Artificial replenishment activities combined with natural replenishment and controlled pumping have ensured a sustainable, reliable supply of groundwater in the CWCB. Artificial replenishment water sources used by WRD include imported water from the MWD, recycled water from the CSDLAC, and recycled water with advanced treatment from WBMWD.
- At the Montebello Forebay, 25,296 AF of imported water was conserved for replenishment during WY 2004-2005. A total of 29,503 AF of recycled water was conserved for spreading in the Montebello Forebay. A total of 15,975 AF of imported water was injected to the seawater barriers. A total of 3,920 AF of recycled water was purchased for injection into the West Coast Barrier. Total artificial replenishment was 74,694 AF for WY 2004-2005.
- Groundwater production in the CWCB was 229,908 AF for Water Year 2004-2005. This amount is less than the adjudicated amount of 281,835 AF.
- Groundwater levels (heads) were monitored continuously in the CWCB during the Water Year. The WRD nested monitoring wells show clear, significant differences in groundwater elevations between the various aquifers screened. The head differences in the WRD nested monitoring wells reflect both hydrogeologic and pumping conditions in the CWCB. Vertical head differences between 1 and 60 feet occur between zones above and within the producing zones. The greatest head differences tend to occur in the Long Beach area of the Central Basin and Gardena and Carson areas of the West Coast Basin, while the smallest differences occur in the Montebello Forebay recharge area, and the Torrance area which has thick, merged aquifers.
- Basinwide hydrographs and groundwater elevations measured in nested monitoring

wells and key production wells indicate significant increases in water levels, up to 40 feet in portions the Central Basin and generally stable to slightly increasing levels in the West Coast Basin during WY 2004-2005. On average, water levels increased in the unconfined Montebello Forebay area about 20 feet and in the Los Angeles Forebay about 5 feet during WY 2004-2005. Elsewhere in the confined portions of the deeper aquifers of the basin water levels generally increased 1 to 10 feet during WY 2004-2005. The change in groundwater storage for the CWCB was calculated at a gain in storage of approximately 89,100 AF to the CWCB.

- The water quality associated with key constituents in untreated imported water used at the Montebello Forebay Spreading Grounds remains good. Average TDS, hardness, iron and manganese concentrations in both Colorado River and State Project Water remain below their respective MCLs. Meanwhile, TCE and PCE have not been detected in either water source.
- The water quality associated with key constituents in recycled water used at the Montebello Forebay Spreading Grounds also remains excellent and is carefully monitored and controlled to show little variation over time.
- Stormwater samples are occasionally collected and analyzed for water quality parameters. Samples collected recently show that average stormwater TDS concentrations and hardness are lower than most other sources of replenishment water.
- Based on the data obtained from the WRD nested monitoring wells during WY 2004-2005, the water quality associated with key constituents in groundwater differs both vertically between aquifers and horizontally (areally) across the CWCB.
- TDS concentrations for WRD wells located in the Central Basin are relatively low, while TDS concentrations for WRD wells located in the West Coast Basin are elevated in portions of the basin, primarily the Torrance and Dominguez Gap areas. The elevated TDS concentrations may be caused by seawater intrusion or connate brines, or possibly oil field brines. During this reporting period, concentrations in the Central Basin ranged from 170 mg/L to 2,770 mg/L, and in the West Coast Basin 150 mg/L to 13,600 mg/L. The District is conducting further studies with the USGS to identify potential sources of high TDS.

- Iron concentrations are potentially problematic in portions of the CWCB. During the current reporting period, concentrations in the Central Basin ranged from non-detectable to 8.4 mg/L, and in the West Coast Basin from non-detectable to 1.2 mg/L. The secondary MCL for iron is 0.3 mg/L. Sources of the localized high iron concentrations have not yet been identified but are possibly naturally occurring.
- Similar to the iron concentrations, manganese concentrations exceed the MCL (50 µg/L) in a large number of nested monitoring wells and production wells across the CWCB. During the current reporting period, nested well concentrations in the Central Basin ranged from non-detectable to 1,300 µg/L, and in the West Coast Basin from non-detectable to 1,200 µg/L. Similar to iron, sources of the localized high manganese concentrations have not yet been identified but are possibly naturally occurring.
- Nitrate (as nitrogen) concentrations in WRD nested monitoring wells in the Central Basin ranged from non-detectable to 12 mg/L, and in the West Coast Basin from non-detectable to 12 mg/L. Concentrations approaching or exceeding the 10 mg/L MCL tend to be limited to the uppermost zone at a particular nested well and are likely due to localized infiltration and leaching. Concentrations above the MCL were not observed in the Silverado Aquifer. DHS data indicates that none of the CWCB production wells tested for nitrate above the MCL during WYs 2002-2005.
- TCE was not detected in the Silverado Aquifer in the WRD wells sampled, with the exception of South Gate #1. During the current reporting period, concentrations in nested monitoring wells in the Central Basin ranged from non-detectable to 32 µg/L, and in the West Coast Basin from non-detectable to 18 µg/L. DHS data indicate that TCE was detected in 62 production wells in the Central Basin during WYs 2002-2005, 15 out of the 62 detections exceed the MCL for TCE. In the West Coast Basin, TCE was not detected above the MCL in any production wells.
- PCE was detected in eight WRD nested monitoring wells in the Central Basin and one well in the West Coast Basin. PCE was detected in the Silverado Aquifer in three of the WRD wells sampled. During the current reporting period, concentrations in the Central Basin ranged from non-detectable to 8.3 µg/L, and in the West Coast Basin from non-detectable to 0.8 µg/L. DHS data indicate that PCE was detected in

68 production wells in the Central Basin during WYs 2002-2005. A total of 16 out of the 68 detections exceeded the MCL for PCE. PCE was not detected in any of the West Coast Basin production wells.

- EPA has adopted a new arsenic standard for drinking water, decreasing the former MCL of 50 µg/L to 10 µg/L. Enforcement of the pending MCL is scheduled to begin in 2006. WRD nested monitoring wells indicate that arsenic concentrations in the southeast portion of the Central Basin can exceed the pending MCL. Nine production wells, all in this portion of the Central Basin, have arsenic concentrations exceeding the pending MCL of 10 µg/L. Arsenic was not detected above the MCL in any of the West Coast Basin production wells.
- Chromium, including hexavalent chromium, was detected above the MCL in groundwater samples from one WRD nested monitoring well and three production wells in the vicinity of the Montebello and Los Angeles Forebay areas. Additional monitoring wells and production wells contained detectable chromium concentrations below the MCL. Some of the detections are in the deep aquifers including the Silverado and Sunnyside. DHS data for hexavalent chromium in groundwater from production wells are reasonably consistent with data for nested monitoring wells.
- MTBE was detected in three Central Basin production wells, all below the MCL.
- Total organic carbon and apparent color are being monitored and studied in relation to development of potential groundwater production from deeper portions of the CWCB than have typically been utilized in the past.
- Perchlorate was detected in five WRD nested monitoring wells and three production wells in the Central Basin, all concentrations below the SAL. Perchlorate was not detected in West Coast Basin wells.
- As shown by the data presented herein, groundwater in the CWCB is of generally good quality and is suitable for use by the pumpers in the District, the stakeholders, and the public. Localized areas of marginal to poor water quality are either currently receiving or may require treatment prior to being used as a potable source.
- WRD's review of the major contamination sites in the CWCB identified thirty-six priority sites which could impact aquifers. WRD continues to work closely with the lead regulatory agencies of these sites to monitor investigation and cleanup activities.

SECTION 6
FUTURE ACTIVITIES

WRD will continue to update and augment its Regional Groundwater Monitoring Program to best serve the needs of the District, the pumpers and the public. Some of the activities planned under this program for the WY 2004-2005 are listed below.

- WRD will continue to maximize recycled water use at the Montebello Forebay Spreading Grounds without exceeding regulatory limits, because recycled water is a high quality and relatively low-cost replenishment water source. Over the past three years, WRD has nearly fully utilized this resource within regulatory limits.
- WRD will continue to maximize recycled water use at the West Coast Barrier, and projects to use recycled water at the Dominguez Gap and Alamitos Gap Barriers will begin in 2005-06. Extensive monitoring of these recycled water injection projects will be performed to comply with applicable permits and to track subsurface movement of the recycled water front. However, research will be performed to determine whether the very low levels of pharmaceuticals recently discovered in water reclamation plant effluents reaches the aquifers.
- WRD will continue to monitor the quality of replenishment water sources to ensure the CWCB are being recharged with high-quality water.
- Total injection quantities at the Dominguez Gap Barrier has increased in the past several years as additional barrier wells injection was utilized to further combat seawater intrusion. Injection quantities at the West Coast Barrier were down due to operational issues but it is anticipated that planned injection quantities will resume in 2005-06. The Alamitos Gap Barrier is expected to remain at current or reduced levels. WRD will work with the pumpers over the next year to find solutions to reduce the injection water demands and/or high costs. Basin management alternatives including Aquifer Storage and Recovery (ASR) projects, pipeline construction, and other conjunctive use projects and programs will be explored to help find solutions to future groundwater resource management challenges.

- WRD continues refining the regional understanding of groundwater occurrence, movement, and quality. Water levels will be recorded using automatic dataloggers to monitor groundwater elevation differences throughout the year. Each year, WRD Staff evaluate the need to fill data gaps with additional nested monitoring wells.
- WRD will continue to sample groundwater from nested monitoring wells, and analyze the samples for general water quality constituents. In addition, WRD will continue to focus on constituents of interest to WRD and the pumpers such as TCE, PCE, arsenic, hexavalent chromium, MTBE, perchlorate, and apparent color. New chemicals of concern which have not been comprehensively monitored include pesticides, n-nitrosodimethylamine (NDMA), 1,4-Dioxane, tert-butyl alcohol (TBA), pharmaceuticals and others.
- WRD staff will be working on refining the hydrogeologic conceptual model of the CWCB using data from the RGWMP and other data to improve the framework for understanding the dynamics of the groundwater system and use as a planning tool.
- WRD staff will continue to be proactively involved in the oversight of the most significant contaminated sites that threaten CWCB groundwater resources.
- WRD will continue to use the data generated by the Regional Groundwater Monitoring Program along with WRD's advanced GIS capabilities to address current and upcoming issues related to water quality and groundwater replenishment in the Central and West Coast Basins.

SECTION 7
REFERENCES

American Water Works Association Research Foundation (AWWA), *Soil Aquifer treatment for Sustainable Water Reuse*, 2001.

Bookman-Edmonston Engineering, Inc., *Report on Program of Water Quality Monitoring*, January 1973.

California Department of Water Resources (DWR), *Bulletin No. 104: Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A – Ground Water Geology*, 1961.

County Sanitation Districts of Los Angeles County (CSDLAC), *Montebello Forebay Groundwater Recharge Engineering Report*, November 1997.

County Sanitation Districts of Los Angeles County (CSDLAC), *Montebello Forebay Groundwater Recharge-WQCB order No. 91-100, Monitoring and Reporting Program No. 5728, Annual Monitoring Reports*, 1999.

Driscoll, Fletcher G, Ph.D., *Groundwater and Wells*, Johnson Filtration Systems, Inc. 1989.

Fetter, C.W., *Applied Hydrogeology, Third Edition*, Prentice-Hall, 1994.

Hem, John D., *Study and Interpretation of the Chemical Characteristics of Natural Water, Third Edition*, U.S. Geological Survey Water-Supply Paper 2254, 1992.

Mendenhall, W.D., 1905, *Development of underground waters in the central coastal plain region of southern California*: U.S. Geological Survey Water Supply Paper 137, 140p.

Metropolitan Water District of Southern California (MWD), *Draft Annual Report*, 1999.

Montgomery Watson, *Report for West Coast Basin Desalinization Feasibility/Siting Study*, February 1997.

Montgomery Watson, *West Coast Basin Plume Mitigation Study*, September 1992.

National Research Council, *Issues in Potable Reuse*, National Academy Press, 1998.

Reichard, Eric G.; Land, Michael; Crawford, Steven M.; Johnson, Tyler; Everett, Rhett; Kulshan, Trayle V.; Ponti, Daniel J.; Halford, Kieth J.;Johnson, Theodore A.; Paybins, Katherine S.; and Nishikawa, Tracey: *Geohydrology, Geochemistry, and Ground-Water Simulation-Optimization of the Central and West Coast Basins, Los Angeles County, California*, United States Geological Survey Water Resources Investigations Report 03-4065; Sacramento, California, 2003.

United States Environmental Protection Agency (EPA), *Whittier Narrows Operable Unit Feasibility Study Addendum*, October 1998.

Water Replenishment District of Southern California (WRD), *Engineering Survey and Report*, 2000.

West Basin Municipal Water District, *West Basin Water Reclamation Treatment Facility, Annual Report*, 1999.

TABLES

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Carson #1	1	100030	1010	990	1010	Sunnyside
	2	100031	760	740	760	Silverado
	3	100032	480	460	480	Lynwood
	4	100033	270	250	270	Gage
Carson #2	1	101787	1250	1230	1250	Sunnyside
	2	101788	870	850	870	Silverado
	3	101789	620	600	620	Silverado
	4	101790	470	450	470	Lynwood
	5	101791	250	230	250	Gage
Cerritos #1	1	100870	1215	1155	1175	Sunnyside
	2	100871	1020	1000	1020	Sunnyside
	3	100872	630	610	630	Lynwood
	4	100873	290	270	290	Gage
	5	100874	200	180	200	Artesia
	6	100875	135	125	135	Artesia
Cerritos #2	1	101781	1470	1350	1370	Sunnyside
	2	101782	935	915	935	Silverado
	3	101783	760	740	760	Silverado
	4	101784	510	490	510	Jefferson
	5	101785	370	350	370	Gage
	6	101786	170	150	170	Gaspur
Chandler #3B	1	100082	363	341	363	Gage/Lynwood/Silverado
Chandler #3A	2	100083	192	165	192	Gage/Lynwood/Silverado
Commerce #1	1	100881	1390	1330	1390	Pico Formation
	2	100882	960	940	960	Sunnyside
	3	100883	780	760	780	Sunnyside
	4	100884	590	570	590	Silverado
	5	100885	345	325	345	Hollydale
	6	100886	225	205	225	Exposition/Gage
Compton #1	1	101809	1410	1370	1390	Sunnyside
	2	101810	1170	1150	1170	Sunnyside
	3	101811	820	800	820	Silverado
	4	101812	480	460	480	Hollydale
	5	101813	325	305	325	Gage
Downey #1	1	100010	1190	1170	1190	Sunnyside
	2	100011	960	940	960	Silverado
	3	100012	600	580	600	Silverado
	4	100013	390	370	390	Hollydale/Jefferson
	5	100014	270	250	270	Exposition
	6	100015	110	90	110	Gaspur
Gardena #1	1	100020	990	970	990	Sunnyside
	2	100021	465	445	465	Silverado
	3	100022	365	345	365	Lynwood
	4	100023	140	120	140	Gage
Gardena #2	1	101804	1335	1275	1335	Sunnyside
	2	101805	790	770	790	Silverado
	3	101806	630	610	630	Silverado
	4	101807	360	340	360	Lynwood
	5	101808	255	235	255	Gardena
Hawthorne #1	1	100887	990	910	950	Pico Formation
	2	100888	730	710	730	Lower San Pedro/Sunnyside
	3	100889	540	520	540	Lower San Pedro/Sunnyside
	4	100890	420	400	420	Silverado
	5	100891	260	240	260	Lynwood
	6	100892	130	110	130	Gage

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Huntington Park #1	1	100005	910	890	910	Silverado
	2	100006	710	690	710	Jefferson
	3	100007	440	420	440	Gage
	4	100008	295	275	295	Exposition
	5	100009	134	114	134	Gaspur
Inglewood #1	1	100091	1400	1380	1400	Pico Formation
	2	100092	Abandoned Well			
	3	100093	450	430	450	Silverado
	4	100094	300	280	300	Lynwood
	5	100095	170	150	170	Gage
Inglewood #2	1	100824	860	800	840	Pico Formation
	2	100825	470	450	470	Pico Formation
	3	100826	350	330	350	Silverado
	4	100827	245	225	245	Lynwood
Lakewood #1	1	100024	1009	989	1009	Sunnyside
	2	100025	660	640	660	Silverado
	3	100026	470	450	470	Lynwood
	4	100027	300	280	300	Gage
	5	100028	160	140	160	Artesia
	6	100029	90	70	90	Bellflower
La Mirada #1	1	100876	1150	1130	1150	Sunnyside
	2	100877	985	965	985	Silverado
	3	100878	710	690	710	Lynwood
	4	100879	490	470	490	Jefferson
	5	100880	245	225	245	Gage
Lomita #1	1	100818	1340	1240	1260	Lower San Pedro
	2	100819	720	700	720	Silverado
	3	100820	570	550	570	Silverado
	4	100821	420	400	420	Silverado
	5	100822	240	220	240	Gage
	6	100823	120	100	120	Gage
Long Beach #1	1	100920	1470	1430	1450	Sunnyside
	2	100921	1250	1230	1250	Sunnyside
	3	100922	990	970	990	Silverado
	4	100923	619	599	619	Lynwood
	5	100924	420	400	420	Gage
	6	100925	175	155	175	Artesia
Long Beach #2	1	101740	1090	970	990	Sunnyside
	2	101741	740	720	740	Sunnyside
	3	101742	470	450	470	Silverado
	4	101743	300	280	300	Lynwood
	5	101744	180	160	180	Gage
	6	101745	115	95	115	Gaspur
Long Beach #3	1	101751	1390	1350	1390	Lower San Pedro
	2	101752	1017	997	1017	Silverado
	3	101753	690	670	690	Silverado
	4	101754	550	530	550	Silverado
	5	101755	430	410	430	Lynwood
Long Beach #4	1	101759	1380	1200	1220	Pico Formation
	2	101760	820	800	820	Lower San Pedro
Long Beach #6	1	101792	1530	1490	1510	Lower San Pedro
	2	101793	950	930	950	Sunnyside
	3	101794	760	740	760	Sunnyside
	4	101795	500	480	500	Silverado
	5	101796	400	380	400	Lynwood
	6	101797	240	220	240	Gage

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Long Beach #8	1	101819	1495	1435	1455	Lower San Pedro
	2	101820	1040	1020	1040	Silverado
	3	101821	800	780	800	Silverado
	4	101822	655	635	655	Silverado
	5	101823	435	415	435	Lynwood
	6	101824	185	165	185	Gage
Los Angeles #1	1	100926	1370	1350	1370	Pico Formation
	2	100927	1100	1080	1100	Sunnyside
	3	100928	940	920	940	Silverado
	4	100929	660	640	660	Lynwood
	5	100930	370	350	370	Gage
Montebello #1	1	101770	980	900	960	Pico Formation
	2	101771	710	690	710	Sunnyside
	3	101772	520	500	520	Silverado
	4	101773	390	370	390	Lynwood
	5	101774	230	210	230	Gage
	6	101775	110	90	110	Exposition
Norwalk #1	1	101814	1420	1400	1420	Sunnyside
	2	101815	1010	990	1010	Silverado
	3	101816	740	720	740	Lynwood
	4	101817	450	430	450	Jefferson
	5	101818	240	220	240	Gage
Pico #1	1	100001	900	860	900	Pico Formation
	2	100002	480	460	480	Silverado
	3	100003	400	380	400	Silverado
	4	100004	190	170	190	Jefferson
Pico #2	1	100085	1200	1180	1200	Sunnyside
	2	100086	850	830	850	Sunnyside
	3	100087	580	560	580	Sunnyside
	4	100088	340	320	340	Silverado
	5	100089	255	235	255	Lynwood
	6	100090	120	100	120	Gaspur
PM-1 Columbia	1	100042	600	555	595	Lower San Pedro
	2	100043	505	460	500	Silverado
	3	100044	285	240	280	Lynwood
	4	100045	205	160	200	Gage
PM-3 Madrid	1	100034	685	640	680	Lower San Pedro
	2	100035	525	480	520	Silverado
	3	100036	285	240	280	Lynwood
	4	100037	190	145	185	Gage
PM-4 Mariner	1	100038	715	670	710	Lower San Pedro
	2	100039	545	500	540	Silverado
	3	100040	385	340	380	Lynwood
	4	100041	245	200	240	Gage
Rio Hondo #1	1	100064	1150	1110	1130	Sunnyside
	2	100065	930	910	930	Sunnyside
	3	100066	730	710	730	Sunnyside
	4	100067	450	430	450	Silverado
	5	100068	300	280	300	Lynwood
	6	100069	160	140	160	Gardena
South Gate #1	1	100893	1460	1440	1460	Sunnyside
	2	100894	1340	1320	1340	Sunnyside
	3	100895	930	910	930	Sunnyside
	4	100896	585	565	585	Lynwood/Silverado
	5	100897	250	220	240	Exposition

TABLE 1.1
CONSTRUCTION INFORMATION FOR WRD NESTED MONITORING WELLS

Well Name	Zone	WRD ID Number	Depth of Well (feet)	Top of Perforation (feet)	Bottom of Perforation (feet)	Aquifer Designation
Westchester #1	1	101776	860	740	760	Pico Formation
	2	101777	580	560	580	Lower San Pedro
	3	101778	475	455	475	Silverado
	4	101779	330	310	330	Lynwood
	5	101780	235	215	235	Gage
Whittier #1	1	101735	1298	1180	1200	Pico Formation
	2	101736	940	920	940	Sunnyside
	3	101737	620	600	620	Silverado
	4	101738	470	450	470	Jefferson
	5	101739	220	200	220	Gage
Whittier Narrows #1	1	100046	769	749	769	Sunnyside
	2	100047	769	609.5	629	Sunnyside
	3	100048	769	462.5	482.5	Sunnyside
	4	100049	769	392.5	402	Silverado
	5	100050	769	334	343.5	Silverado
	6	100051	769	272.5	282.5	Lynwood
	7	100052	769	233.5	243	Jefferson
	8	100053	769	163	173	Gardena
	9	100054	769	95	104.5	Gaspur
Willowbrook #1	1	100016	905	885	905	Pico Formation
	2	100017	520	500	520	Silverado
	3	100018	380	360	380	Lynwood
	4	100019	220	200	220	Gage
Wilmington #1	1	100070	1040	915	935	Sunnyside
	2	100071	800	780	800	Sunnyside
	3	100072	570	550	570	Silverado
	4	100073	245	225	245	Lynwood
	5	100074	140	120	140	Gage
Wilmington #2	1	100075	1030	950	970	Sunnyside
	2	100076	775	755	775	Silverado
	3	100077	560	540	560	Lynwood
	4	100078	410	390	410	Lynwood
	5	100079	140	120	140	Gage

TABLE 2.1
SUMMARY OF SPREADING OPERATIONS AT MONTEBELLO FOREBAY

(Acre-feet)

Water Year	Rio Hondo (includes Spreading Grounds & Whittier Narrows Reservoir)				San Gabriel (includes unlined river and Spreading Grounds)				Total Recharge			
	Imported	Recycled	Local	Total	Imported	Recycled	Local	Total	Imported	Recycled	Local	Total
1963/64	44,366	4,758	6,013	55,137	40,150	4,145	3,979	48,274	84,516	8,903	9,992	103,411
1964/65	64,344	2,501	8,616	75,461	69,995	4,867	4,481	79,343	134,339	7,368	13,097	154,804
1965/66	62,067	9,984	31,317	103,368	32,125	3,129	14,433	49,687	94,192	13,113	45,750	153,055
1966/67	46,322	14,117	37,428	97,867	20,813	2,106	22,392	45,311	67,135	16,223	59,820	143,178
1967/68	65,925	16,299	27,885	110,109	12,402	1,975	11,875	26,252	78,327	18,274	39,760	136,361
1968/69	13,018	6,105	69,055	88,178	4,895	7,772	50,106	62,773	17,913	13,877	119,161	150,951
1969/70	25,474	13,475	24,669	63,618	35,164	3,683	28,247	67,094	60,638	17,158	52,916	130,712
1970/71	41,913	11,112	24,384	77,409	21,211	8,367	21,735	51,313	63,124	19,479	46,119	128,722
1971/72	15,413	12,584	10,962	38,959	14,077	4,959	6,218	25,254	29,490	17,543	17,180	64,213
1972/73	47,712	12,238	33,061	93,011	32,823	9,767	12,016	54,606	80,535	22,005	45,077	147,617
1973/74	40,593	9,574	18,421	68,588	34,271	10,516	8,544	53,331	74,864	20,090	26,965	121,919
1974/75	29,173	11,359	16,542	57,075	32,974	8,084	10,360	51,418	62,147	19,443	26,902	108,493
1975/76	14,783	8,371	10,503	33,657	19,611	10,297	7,763	37,671	34,394	18,668	18,266	71,328
1976/77	11,349	3,195	7,753	22,297	2,548	15,707	5,165	23,420	13,897	18,902	12,918	45,717
1977/78	19,112	7,424	53,086	79,622	11,249	9,938	74,967	96,154	30,361	17,362	128,053	175,776
1978/79	27,486	6,233	36,659	70,377	15,143	14,367	17,250	46,760	42,629	20,600	53,909	117,137
1979/80	11,229	8,082	54,416	73,726	6,602	14,549	39,753	60,904	17,831	22,631	94,169	134,630
1980/81	43,040	9,177	38,363	90,581	13,823	16,283	8,860	38,966	56,863	25,460	47,223	129,547
1981/82	19,299	9,667	37,730	66,696	11,239	19,143	8,283	38,665	30,538	28,810	46,013	105,361
1982/83	3,203	7,512	89,153	99,868	5,975	9,419	36,893	52,287	9,178	16,931	126,046	152,155
1983/84	18,815	9,647	38,395	66,857	912	17,371	18,667	36,950	19,727	27,018	57,062	103,807
1984/85	33,364	7,848	23,614	64,826	3,879	12,930	10,620	27,429	37,243	20,778	34,234	92,255
1985/86	8,128	9,234	51,913	69,275	10,927	16,806	13,045	40,778	19,055	26,040	64,958	110,053
1986/87	-	12,234			64,575	87,921			64,575	100,155	16,700	181,431
1987/88	16,105	12,560	22,508	51,173	6,529	24,678	22,125	53,332	22,634	37,238	44,633	104,505
1988/89	-	26,568			63,216	25,981			63,216	52,548	24,200	139,964
1989/90	7,079	25,629			72,196	24,560			79,275	50,188	26,400	155,864
1990/91	33,320	20,927			34,215	33,045			67,536	53,972	18,300	139,808
1991/92	28,695	19,156			58,381	28,679			87,077	47,835	71,000	205,911
1992/93	4,306	18,526			26,596	32,041			30,902	50,567	107,700	189,169
1993/94	7,599	26,654			25,893	27,361			33,492	54,015	36,800	124,307
1994/95	3,827	16,397			25,227	22,861			29,054	39,258	92,100	160,411
1995/96	12,304	24,154	41,514	77,972	3,899	26,502	13,709	44,110	16,203	50,656	55,223	122,082
1996/97	12,652	17,899	33,658	64,209	4,732	28,085	17,715	50,532	17,384	45,984	51,373	114,741
1997/98	889	14,984	52,958	68,831	-	19,594	32,580	52,174	889	34,578	85,538	121,005
1998/99	-	23,102	14,840	37,942	-	18,099	11,990	30,089	-	41,201	26,830	68,031
1999/00	43,441	16,093	5,700	65,234	1,596	27,049	15,036	43,681	45,037	43,142	20,736	108,915
2000/01									23,451	43,778	42,290	109,519
2001/02				72,874				47,597	41,268	60,596	18,607	120,471
2002/03				83,757				39,606	22,366	42,640	58,357	123,363
2003/04				64,399				38,512	27,520	44,924	30,467	102,911
2004/05				125,487				77,835	25,296	29,503	148,523	203,322

Notes:

1) These amounts may differ from those shown in WRD's Annual Engineering Survey and Report (ESR). The ESR reflects only water that WRD purchased for replenishment. However, some of this water may percolate or evaporate in San Gabriel Valley before it reaches the spreading grounds. Other entities such as LACDPW or the Main San Gabriel Basin Watermaster may also purchase replenishment water that is spread and accounted for in the above table. Recycled water is also provided by CSDLAC's Pomona treatment plant and is not paid for by WRD. This table reflects water which was actually conserved in the spreading grounds as reported by LACDPW.

2) Data for shaded areas in the above table were not available from LACDPW. In recent years, only total system recharge volumes could be reported, not relative imported/recycled/local volumes. Corresponding local water rechage volumes were calculated by subtracting imported and reclaimed water volumes from the total volume.

TABLE 2.2
HISTORICAL QUANTITIES OF ARTIFICIAL REPLENISHMENT WATER AT SEAWATER INTRUSION BARRIERS

(Acre-feet)

WATER YEAR	WEST COAST BASIN BARRIER			DOMINGUEZ GAP BARRIER	ALAMITOS BARRIER (a)			TOTAL
	Imported	Recycled	Total		WRD	OCWD	Total	
1952/53	1,140		1,140					1,140
1953/54	3,290		3,290					3,290
1954/55	2,740		2,740					2,740
1955/56	2,840		2,840					2,840
1956/57	3,590		3,590					3,590
1957/58	4,330		4,330					4,330
1958/59	3,700		3,700					3,700
1959/60	3,800		3,800					3,800
1960/61	4,480		4,480					4,480
1961/62	4,510		4,510					4,510
1962/63	4,200		4,200					4,200
1963/64	10,450		10,450					10,450
1964/65	33,020		33,020		2,760	200	2,960	35,980
1965/66	44,390		44,390		3,370	350	3,720	48,110
1966/67	43,060		43,060		3,390	490	3,880	46,940
1967/68	39,580		39,580		4,210	740	4,950	44,530
1968/69	36,420		36,420		4,310	950	5,260	41,680
1969/70	29,460		29,460		3,760	720	4,480	33,940
1970/71	29,870		29,870	2,200	3,310	820	4,130	36,200
1971/72	26,490		26,490	9,550	4,060	930	4,990	41,030
1972/73	28,150		28,150	8,470	4,300	880	5,180	41,800
1973/74	27,540		27,540	7,830	6,140	1,150	7,290	42,660
1974/75	26,430		26,430	5,160	4,440	720	5,160	36,750
1975/76	35,220		35,220	4,940	4,090	570	4,660	44,820
1976/77	34,260		34,260	9,280	4,890	880	5,770	49,310
1977/78	29,640		29,640	5,740	4,020	830	4,850	40,230
1978/79	23,720		23,720	5,660	4,220	900	5,120	34,500
1979/80	28,630		28,630	4,470	3,560	580	4,140	37,240
1980/81	26,350		26,350	3,550	3,940	530	4,470	34,370
1981/82	24,640		24,640	4,720	4,540	390	4,930	34,290
1982/83	33,950		33,950	6,020	3,270	1,940	5,210	45,180
1983/84	28,000		28,000	7,640	2,440	1,400	3,840	39,480
1984/85	25,210		25,210	7,470	3,400	1,450	4,850	37,530
1985/86	20,260		20,260	6,160	3,410	1,860	5,270	31,690
1986/87	26,030		26,030	6,230	4,170	2,750	6,920	39,180
1987/88	24,270		24,270	7,050	3,990	2,170	6,160	37,480
1988/89	22,740		22,740	5,220	3,900	1,680	5,580	33,540
1989/90	20,279		20,279	5,736	4,110	2,000	6,110	32,125
1990/91	16,039		16,039	7,756	4,096	1,818	5,914	29,709
1991/92	22,180		22,180	6,894	4,172	1,553	5,725	34,799
1992/93	21,516		21,516	4,910	3,350	1,567	4,917	31,343
1993/94	15,482		15,482	5,524	2,794	1,309	4,103	25,109
1994/95	14,237	1,480	15,717	4,989	2,883	889	3,772	24,478
1995/96	12,426	4,170	16,596	5,107	3,760	2,010	5,770	27,473
1996/97	11,372	6,241	17,613	5,886	3,854	1,751	5,605	29,103
1997/98	8,173	8,306	16,479	3,771	3,677	1,503	5,180	25,430
1998/99	10,125	6,973	17,098	4,483	4,012	1,689	5,701	27,282
1999/00	11,172	7,460	18,632	6,010	4,028	1,709	5,737	30,379
2000/01	13,988	6,838	20,826	3,923	3,710	1,923	5,633	30,382
2001/02	12,724	7,276	20,000	5,459	3,961	2,232	6,193	31,652
2002/03	10,419	6,192	16,611	8,056	3,287	1,197	4,484	29,151
2003/04	9,304	3,669	12,973	6,089	3,876	2,092	5,968	25,030
2004/05	4,548	3,920	8,468	8,557	2,870	1,685	4,555	21,580

(a) Alamitos Barrier Water is purchased by WRD on the Los Angeles County side of the barrier, and by Orange County Water District on the Orange County side.

TABLE 2.3
WATER QUALITY OF REPLENISHMENT WATER, WATER YEAR 2004-2005

Constituent	Units	Treated Colorado River/State Project Water[a] 2005	Untreated Colorado River Water[b] 2005	Untreated State Project Water[b] 2005	West Basin MWD WRP[c] 2005	Whittier Narrows WRP[b] 2005	San Jose Creek East WRP[b] 2005	San Jose Creek West WRP[b] 2005	Pomona WRP[b] 2005	Stormwater[d] 2004-2005
Total Dissolved Solids (TDS)	mg/L	445/275	633	261	56	523	632	527	538	255
Hardness	mg/L	181/110	307	111	31	178	198	190	204	148
Sulfate	mg/L	145/46	251	41	3.6	91	124	78	61	50
Chloride	mg/L	86/71	87	65	6.2	98	159	105	135	43
Nitrogen (Nitrate as N)	mg/L	0.47/0.61	ND	0.63	0.1	5.37	3.45	3.92	2.15	1.5
Iron	mg/L	ND/ND	ND	ND	ND	<0.05	0.08	<0.06	<0.05	0.263
Manganese	ug/L	ND/ND	ND	ND	ND	<7	30	10	<7	19
Trichloroethylene (TCE)	ug/L	ND/ND	ND	ND	ND	<0.5	<0.5	<0.5	<0.5	NA
Tetrachloroethylene (PCE)	ug/L	ND/ND	ND	ND	0.3	<0.5	<0.5	<0.6	<0.5	NA
Total Organic Carbon (TOC)	mg/L	2.2/2.2	3	3	0.11	6.63	7.95	8	9.6	15.23
Perchlorate	ug/L	ND/ND	4.4	ND	NA	NA	NA	NA	NA	NA

Notes:

a = Used at the seawater intrusion barriers, generally Weymouth Plant product to Dominguez Gap and Alamitos Barriers, and Jensen Plant product to the West Coast Barrier.

b = Used at the Montebello Forebay spreading grounds

c = Used at the West Coast Basin Barrier

d = Average concentration data from LACDPW, for samples collected from San Gabriel River Station 12 WY 2004-2005

Sources of data:

2004 Water Quality Report to MWD Member Agencies

Montebello Forebay Groundwater Recharge annual report (CSDLAC, December 2005)

West Basin Water Recycling Facility Annual Report (West Basin MWD, 2005)

Los Angeles County Department of Public Works

TABLE 3.1
HISTORICAL AMOUNTS OF GROUNDWATER PRODUCTION
(Acre-feet)

WATER YEAR	CENTRAL BASIN	WEST COAST BASIN	TOTAL
1960/61	292,500	61,900	354,400
1961/62	275,800	59,100	334,900
1962/63	225,400	59,100	284,500
1963/64	219,100	61,300	280,400
1964/65	211,600	59,800	271,400
1965/66	222,800	60,800	283,600
1966/67	206,700	62,300	269,000
1967/68	220,100	61,600	281,700
1968/69	213,800	61,600	275,400
1969/70	222,200	62,600	284,800
1970/71	211,600	60,900	272,500
1971/72	216,100	64,800	280,900
1972/73	205,600	60,300	265,900
1973/74	211,300	55,000	266,300
1974/75	213,100	56,700	269,800
1975/76	215,300	59,400	274,700
1976/77	211,500	59,800	271,300
1977/78	196,600	58,300	254,900
1978/79	207,000	58,000	265,000
1979/80	209,500	57,100	266,600
1980/81	211,915	57,711	269,626
1981/82	202,587	61,874	264,461
1982/83	194,548	57,542	252,090
1983/84	196,660	51,930	248,590
1984/85	193,085	52,746	245,831
1985/86	195,889	52,762	248,650
1986/87	196,587	48,026	244,613
1987/88	194,561	43,833	238,394
1988/89	200,105	44,162	244,267
1989/90	197,811	47,904	245,715
1990/91	186,977	53,075	240,052
1991/92	196,382	55,964	252,346
1992/93	150,386	40,058	190,444
1993/94	156,930	41,768	198,697
1994/95	181,164	41,396	222,560
1995/96	182,067	52,759	234,826
1996/97	187,452	52,581	240,033
1997/98	188,988	51,841	240,829
1998/99	204,418	51,331	255,749
1999/00	197,946	53,579	251,525
2000/01	195,255	53,842	249,047
2001/02	199,900	50,066	249,966
2002/03	190,082	51,789	241,871
2003/04	200,332	47,965	248,297
2004/05	188,673	41,235	229,908

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2003-2004

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Carson #1						Reference Point Elevation: 24.16
Depth of Well	990-1010	740-760	460-480	250-270		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/27/2004	-54.96	-54.22	-20.56	-19.01		
1/31/2005	-52.92	-52.34	-20.13	-18.6		
3/29/2005	-53.82	-53.14	-20.29	-18.54		
3/8/2005	-53.66	-53.03	-19.66	-18.16		
6/27/2005	-53.58	-52.58	-18.51	-17.02		
9/26/2005	-52.22	-51.35	-17.81	-16.28		
9/13/2005	-52.6	-51.59	-18	-16.45		
Carson #2						Reference Point Elevation: 39.81
Depth of Well	1230-1250	850-870	600-620	450-470	230-250	
Aquifer Name	Sunnyside	Silverado	Silverado	Lynwood	Gage	
10/21/2004	-44.27	-38.82	-38.53	-35.5	-33.18	
12/31/2004	-43.34	-37.74	-37.46	-34.59	-32.41	
2/1/2005	-42.19	-36.81	-36.54	-33.75	-31.64	
3/18/2005	-42.15	-36.81	-36.48	-33.39	-31.17	
6/28/2005	-41.76	-35.98	-35.68	-32.7	-30.46	
9/15/2005	-41.05	-35.39	-35.1	-32.21	-30.05	
9/21/2005	-40.97	-35.35	-35.06	-32.18	-30.04	
Cerritos #1						Reference Point Elevation: 40.72
Depth of Well	1155-1175	1000-1020	610-630	270-290	180-200	125-135
Aquifer Name	Sunnyside	Sunnyside	Lynwood	Gage	Artesia	Artesia
10/28/2004	-39.93	-41.84	-39.15	9.55	14.79	14.89
12/30/2004	-26.73	-37.5	-30.06	12.87	17.34	17.44
3/10/2005	-9.93	-13.97	-17.45	16.3	19.87	19.97
4/7/2005	-14.76	-17.93	-18.66	17.15	20.95	21.08
6/30/2005	-33.4	-37.38	-34.63	13.58	17.74	17.74
9/28/2005	-40	-40.78	-41.65	12.07	16.55	16.68
Cerritos #2						Reference Point Elevation: 75.27
Depth of Well	1350-1370	915-935	740-760	490-510	350-370	150-170
Aquifer Name	Sunnyside	Silverado	Silverado	Jefferson	Gage	Gaspur
12/30/2004	-11.42	-19.81	-25.41	-3.94	21.76	30.01
4/1/2005	3.88	-3.37	-10.17	2.5	24.91	32
6/27/2005	-1.19	-22.99	-27.95	-6.35	22.46	31.38
9/27/2005	-12.32	-26.18	-30.9	-7.61	21.62	30.67
Chandler #3						Reference Point Elevation: 153.2
Depth of Well	341-363	165-192				
Aquifer Name	Gage/Lynw/Silv	Gage/Lynw/Silv				
01/06/2005	**-22.31**	**-22.28**				
03/31/2005	**-21.52**	**-21.18**				
06/30/2005	**-21.82**	**-21.52**				
09/29/2005	**-21.19**	**-20.73**				
Commerce #1						Reference Point Elevation: 170.09
Depth of Well	1330-1390	940-960	760-780	570-590	325-345	205-225
Aquifer Name	Pico	Sunnyside	Sunnyside	Silverado	Hollydale	Exposition/Gage
1/5/2005	57.75	57.27	54.34	26.98	27.33	56.32
4/7/2005	57.41	63.27	60.52	30.73	31.87	57.12
7/5/2005	58.16	64.36	61.45	32.91	34.04	57.23
8/31/2005	58.67	62.41	59	26.59	26.85	56.71
9/30/2005	58.64	61.93	58.43	27.7	26.5	56.96
Compton #1						Reference Point Elevation: 67.17
Depth of Well	1370-1390	1150-1170	800-820	460-480	325-345	
Aquifer Name	Sunnyside	Sunnyside	Silverado	Hollydale	Gage	
12/27/2004	-36.58	-36.51	-17.5	-5.47	-2.55	
1/28/2005	-27.92	-27.87	-13.99	-2.96	-1.55	
3/14/2005	-24.15	-24.14	-10.69	0.73	1.38	
4/7/2005	-19.31	-19.31	-9.16	0.49	0.74	
6/28/2005	-25.62	-25.49	-10.98	-4.61	-4.8	
9/27/2005	-46.23	-46.01	-15.5	-5.96	-5.23	
9/15/2005	-41.79	-41.58	-15.71	-7.16	-6.19	
Downey #1						Reference Point Elevation: 97.21
Depth of Well	1170-1190	940-960	580-600	370-390	250-270	90-110
Aquifer Name	Sunnyside	Silverado	Silverado	Hollydale/Jefferson	Exposition	Gaspur
1/5/2005	8.75	10.06	14.56	14.11	37.42	41.03
3/30/2005	19.73	20.37	23.74	19.39	38.48	41.25
3/2/2005	17.1	18.23	22.81	18.51	38.11	41.06
6/28/2005	21.35	19.22	14.59	11.66	37.71	41.86
9/21/2005	11.06	11.38	12.43	12.93	38.1	42.41

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2003-2004

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Gardena #1						Reference Point Elevation: 80.79
Depth of Well	970-990	445-465	345-365	120-140		
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage		
12/27/2004	-59.11	-121.05	-85.62	-16.06		
1/31/2005	-58.72	-119.87	-84.88	-16.05		
4/1/2005	-58.51	-122.02	-86.26	-15.9		
3/16/2005	-58.61	-121.91	-85.73	-16.09		
6/27/2005	-58.6	-120.64	-85.06	-15.46		
9/26/2005	-58.19	-119.61	-86.18	-14.86		
9/12/2005	-58.27	-121.39	-85.39	-15.04		
Gardena #2						Reference Point Elevation: 26.74
Depth of Well	1275-1335	770-790	610-630	340-360	235-255	
Aquifer Name	Sunnyside	Silverado	Silverado	Lynwood	Gardena	
12/31/2004	-46.98	-54.73	-54.77	-26.51	-14.54	
3/7/2005	-46.28	-58.19	-58.27	-26.49	-13.85	
3/30/2005	-46.33	-58.66	-58.68	-26.9	-14.16	
6/27/2005	-46.2	-55.59	-55.65	-25.09	-13.25	
9/13/2005	-45.65	-54.22	-54.2	-23.83	-12.31	
9/15/2005	-45.5	-54.14	-54.18	-23.86	-12.31	
Hawthorne #1						Reference Point Elevation: 86.35
Depth of Well	910-950	710-730	520-540	400-420	240-260	110-130
Aquifer Name	Pico	Lower San Pedro	Lower San Pedro	Silverado	Lynwood	Gage
12/30/2004	-90.48	-16.21	-15.1	-15.01	-11.16	-2.86
3/29/2005	-95.34	-16.47	-15.49	-15.42	-11.3	-2.44
6/27/2005	-87.72	-12.17	-11.51	-11.41	-8.65	-1.98
9/19/2005	-79.94	-11.58	-10.97	-10.83	-7.81	-1.49
Huntington Park #1						Reference Point Elevation: 177.08
Depth of Well	890-910	690-710	420-440	275-295		
Aquifer Name	Silverado	Jefferson	Gage	Exposition		
12/27/2004	-30.39	-31.09	-27.09	14.7		
4/1/2005	-30.31	-30.3	-25.74	14.47		
6/27/2005	-29.48	-31.64	-25.61	13.88		
9/22/2005	-29.87	-30.86	-27.55	14.02		
Inglewood #1						Reference Point Elevation: 110.56
Depth of Well	1380-1400		430-450	280-300	150-170	
Aquifer Name	Pico		Silverado	Lynwood	Gage	
12/30/2004	-35.06		-53.69	-4.77	0.98	
3/3/2005	-35.95		-54.68	-4.72	0.98	
3/30/2005	-35.57		-55.09	-5.02	0.95	
6/27/2005	-35.42		-53.71	-4.33	1.26	
9/19/2005	-35.01		-51.12	-3.65	1.57	
Inglewood #2						Reference Point Elevation: 217.33
Depth of Well	800-840	450-470	330-350	225-245		
Aquifer Name	Pico	Pico	Silverado	Lynwood		
12/30/2004	-24.9	-18.75	-8.14	-5.42		
3/30/2005	-24.76	-18.3	-8.13	-3.48		
6/27/2005	-24.52	-18.08	-7.89	-3.34		
9/30/2005	-24.39	-17.89	-7.49	-3.09		
9/7/2005	-24.49	-18.06	-7.78	-3.35		
Lakewood #1						Reference Point Elevation: 37.91
Depth of Well	989-1009	640-660	450-470	280-300	140-160	70-90
Aquifer Name	Sunnyside	Silverado	Lynwood	Gage	Artesia	Bellflower
12/29/2004	-47.65	-46.25	-45.42	-28.64	-13.6	10.99
1/25/2005	-37.62	-38.51	-37.61	-25.51	-12.18	12.36
2/1/2005	-37.15	-37.89	-36.73	-25.2	-12.15	12.33
3/24/2005	-43.99	-39.32	-36.43	-20.95	-7.99	14.61
6/30/2005	-53.27	-45.62	-45.39	-28.59	-13.6	13.55
9/8/2005	-97.75	-66.95	-65.46	-31.12	-16.44	12.51
9/27/2005	-80.43	-59.45	-57.07	-30.08	-15.6	12.51
La Mirada #1						Reference Point Elevation: 75.85
Depth of Well	1130-1150	965-985	690-710	470-490	225-245	
Aquifer Name	Sunnyside	Silverado	Lynwood	Jefferson	Gage	
10/28/2004	-27.09	-28.05	-29.55	-38.33	-24.72	
12/30/2004	-11.33	-13	-21.23	-17.33	-12.95	
1/24/2005	-5.15	-7.32	-11.54	-11.84	-8.06	
3/23/2005	3.51	-0.03	-5.63	-12.22	-4.54	
6/30/2005	-0.03	-4.1	-23.53	-41.84	-18.65	
9/19/2005	-10.08	-13	-34.33	-44.25	-23.68	
9/26/2005	-10.58	-13.01	-35.98	-42.04	-23.04	

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2003-2004

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Lomita #1						Reference Point Elevation: 76.91
Depth of Well	1240-1260	700-720	550-570	400-420	220-240	100-120
Aquifer Name	Lower San Pedro	Silverado	Silverado	Silverado	Gage	Gage
12/29/2004	-33.76	-24.45	-23.38	-24.42	-21.51	-23.75
3/9/2005	-31.66	-22.1	-21.8	-22.41	-20.71	-21.67
3/15/2005	-35.42	-22.85	-25.74	-24.72	-21.99	-25.8
6/28/2005	-31.87	-23.22	-21.94	-22.58	-20.15	-22.16
9/15/2005	-32.71	-22.71	-24.83	-23.5	-19.78	-23.72
8/8/2005	-31.2	-22.64	-21.44	-22.24	-19.86	-21.57
8/16/2005	-31.16	-22.69	-21.43	-22.28	-19.82	-21.75
Long Beach #1						Reference Point Elevation: 28.69
Depth of Well	1430-1450	1230-1250	970-990	599-619	400-420	155-175
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Gage	Artesia
10/28/2004	-35.02	-36.91	-55.46	-39.31	-34.54	-12.73
3/31/2005	-3.72	-4.78	-17.89	-16.18	-14.29	0.57
3/9/2005	-7.56	-8.6	-21.83	-14.94	-12.06	0.7
4/6/2005	-2.85	-3.89	-18.02	-16.59	-15.15	-0.41
4/20/2005	-0.67	-1.68	16.24	-14.99	-12.51	-0.92
5/5/2005	1.48	0.46	-22.54	-19.26	-16.65	-1.53
5/10/2005	1.61	0.52	-25.42	-22.24	-22.6	-2.48
5/25/2005	1.37	0.07	-29.76	-25.09	-24.77	-4.81
6/28/2005	-3.55	-5.64	-33.83	-27.13	-27.39	-8.46
7/18/2005	-7.64	-9.7	-49.49	-31.16	-29.89	-11.05
9/1/2005	-14.98	-17.31	-50.57	-41.99	-42.12	-14.98
9/27/2005	-15.96	-18.36	-58.06	-43.05	-42.46	-14.97
9/30/2005			-57.19	-42.64	-41.76	-15.03
Long Beach #2						Reference Point Elevation: 42.15
Depth of Well	970-990	720-740	450-470	280-300	160-180	95-115
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Gage	Gaspur
12/30/2004	-44.13	-36.01	-37.52	-12.52	-3.17	-1.33
3/3/2005	-31.25	-30.39	-36.15	-10.08	-1.1	0.41
3/17/2005	-26.56	-28.33	-35.55	-9.57	-0.73	0.77
6/29/2005	-40.18	-27.42	-35.72	-8.75	0	1.77
9/28/2005	-69.6	-35.52	-35.34	-10.07	-0.26	1.63
Long Beach #3						Reference Point Elevation: 24.60
Depth of Well	1350-1390	997-1017	670-690	530-550	410-430	
Aquifer Name	Lower San Pedro	Silverado	Silverado	Silverado	Lynwood	
12/30/2004	-42.32	-54.12	-54.17	-54.32	-1.37	
3/3/2005	-41.2	-52.8	-52.75	-52.99	-1.18	
3/30/2005	-40.97	-43.34	-53.47	-53.51	-6.55	
3/10/2005	-41.08	-52.7	-52.54	-52.83	-1.27	
6/29/2005	-40.35	-52.28	-52.28	-52.43	2.5	
6/7/2005	-40.58	-52.69	-52.72	-53.1	2.48	
9/7/2005	-39.93	-51.48	-51.34	-51.49		
9/29/2005	-39.77	-51.44	-51.44	-51.64	2.34	
Long Beach #4						Reference Point Elevation: 9.52
Depth of Well	1200-1220	800-820				
Aquifer Name	Pico	Lower San Pedro				
12/29/2004	**-41.7**	**-21.51**				
04/12/2005	**-40.01**	**-21.15**				
06/28/2005	**-38.59**	**-16.47**				
09/26/2005	**-38.5**	**-16.96**				
Long Beach #6						Reference Point Elevation: 32.53
Depth of Well	1490-1510	930-950	740-760	480-500	380-400	220-240
Aquifer Name	Lower San Pedro	Sunnyside	Sunnyside	Silverado	Lynwood	Gage
12/29/2004	-32.85	-42.45	-42.7	-54.51	-54.56	-34.43
1/13/2005	-30.7	-33.67	-33.45	-39.71	-39.7	-31.19
3/16/2005	-14.84	-16.1	-16.1	-23.1	-23.11	-23.96
3/2/2005	-17.81	-18.94	-18.97	-27.52	-27.5	-25.02
6/27/2005	-9.25	-23.65	-25.3	-55.12	-55.2	-26.67
9/14/2005	-22.7	-36.5	-38.05	-79.37	-79.58	-33.76
9/29/2005	-24.5	-40.88	-41.97	-91.28	-91.32	-34.23
Long Beach #8						Reference Point Elevation: 17.78
Depth of Well	1435-1455	1020-1040	780-800	635-655	415-435	165-185
Aquifer Name	Lower San Pedro	Silverado	Silverado	Silverado	Lynwood	Gage
12/29/2004	-20.75	-39.7	-51.89	-49.6	-49.17	-0.06
3/8/2005	-20.34	-38.6	-49.86	-47.83	-47.45	0.42
3/30/2005	-20.24	-38.35	-49.91	-47.88	-47.46	0.51
2/28/2005	-21.13	-38.73	-50.06	-47.97	-47.63	0.25
6/29/2005	-20.1	-38.04	-49.43	-47.3	-46.9	1.46
8/19/2005	-19.98	-37.97	-48.88	-46.71	-46.29	1.83
9/29/2005	-19.91	-37.64	-48.35	-46.35	-45.75	2.06

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2003-2004

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Los Angeles #1						Reference Point Elevation: 173.63
Depth of Well	1350-1370	1080-1100	920-940	640-660	350-370	
Aquifer Name	Pico	Sunnyside	Silverado	Lynwood	Gage	
12/30/2004	-17.02	-22.95	-24.93	-29.38	-22.65	
4/1/2005	-17.25	-22.13	-24.64	-29.07	-22.43	
6/27/2005	-16.03	-21.63	-23.73	-28.94	-22.27	
9/30/2005	-18.16	-22.21	-24.59	-28.97	-23.09	
Montebello #1						Reference Point Elevation: 192.60
Depth of Well	960-980	690-710	500-520	370-390	210-230	90-110
Aquifer Name	Pico	Sunnyside	Silverado	Lynwood	Gage	Exposition
12/30/2004	96.87	96.42	95.72	91.17	84.33	DRY
3/21/2005	106.77	107.75	107.02	102.11	94.31	DRY
6/30/2005	111.03	109.98	109.12	104.45	101.82	DRY
9/26/2005	105.06	101.06	100.19	95.94	98.79	DRY
9/22/2004	89.88	81.07	80.22	76.85	81.52	DRY
Norwalk #1						Reference Point Elevation: 95.44
Depth of Well	1400-1420	990-1010	720-740	430-450	220-240	
Aquifer Name	Sunnyside	Silverado	Lynwood	Jefferson	Gage	
11/16/2004	32.58	-9.63	7.91	-1.26	1.45	
11/20/2004	32.83	-8.74	8.37	3.25	2.07	
12/20/2004	34.69	-4.01	12.3	4.18	2.5	
4/1/2005	45.26	13.8	24.69	9.22	5.26	
6/28/2005	49.16	16.57	24.92	4.66	2.47	
9/26/2005	43.98	6.07	18.02	2.99	0.58	
Pico #1						Reference Point Elevation: 181.06
Depth of Well	860-900	460-480	380-400	170-190		
Aquifer Name	Pico	Silverado	Silverado	Jefferson		
12/28/2004	139.98	136.56	136.26	135.49		
2/8/2005	148.3	143.48	140.41	144.5		
3/30/2005	154.02	152.28	152.05	151.79		
3/9/2005	152.17	150.72	150.44	150.18		
6/20/2005	154.18	143.26	143.92	149.19		
9/30/2005	145.62	128.43	126.03	134.13		
Pico #2						Reference Point Elevation: 149.6
Depth of Well	1180-1200	830-850	560-580	320-340	235-255	100-120
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Lynwood	Gaspur
11/4/2004	71.39	74.5	78.29	86.7	87.18	90.44
12/22/2004	80.33	83.9	87.92	93.67	93.95	95.92
4/7/2005	98.71	100.78	109.63	110.45	112.21	120.67
6/29/2005	96.36	98.54	104.33	111.19	110.89	118.62
9/19/2005	84.65	84.78	91.99	107.1	107.17	116.67
9/20/2005	84.35	85.43	92.01	108.89	109.75	116.49
PM-1 Columbia						Reference Point Elevation: 78.42
Depth of Well	555-595	460-500	240-280	160-200		
Aquifer Name	Lower San Pedro	Silverado	Lynwood	Gage		
12/30/2004	-12.29	-11.73	-10.45	-10.34		
3/30/2005	-11.39	-10	-9.79	-9.73		
6/28/2005	-11.09	-10.09	-9.39	-9.4		
PM-3 Madrid						Reference Point Elevation: 70.68
Depth of Well	640-680	480-520	240-280	145-185		
Aquifer Name	Lower San Pedro	Silverado	Lynwood	Gage		
12/27/2004	-16.33	-13.36	-13.29	-13.26		
1/31/2005	-15.96	-13.01	-12.97	-12.92		
3/17/2005	-15.71	-12.89	-12.75	-12.74		
6/28/2005	-14.98	-12.16	-12.09	-12.09		
9/25/2005	-14.97	-11.5	-11.61	-11.54		
PM-4 Mariner						Reference Point Elevation: 97.7
Depth of Well	670-710	500-540	340-380	200-240		
Aquifer Name	Lower San Pedro	Silverado	Lynwood	Gage		
12/30/2004	-11.13	-8.88	-6.18	-6.11		
3/30/2005	-10.19	-7.53	-4.88	-4.84		
6/28/2005	-9.83	-8.31	-5.53	-5.52		
9/25/2005	-8.59	-7.39	-4.68	-4.62		

TABLE 3.2
GROUNDWATER ELEVATIONS, WATER YEAR 2003-2004

	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
Rio Hondo #1						Reference Point Elevation: 144.36
Depth of Well	1110-1130	910-930	710-730	430-450	280-300	140-160
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Lynwood	Gardena
10/7/2004	57.26	51.01	50.23	41.78	54.34	58.16
12/22/2004	71.28	71.66	70.94	65.27	72.62	74.9
12/28/2004	72.29	73.88	73.23	67.06	73.49	75.76
12/1/2004	68.68	68.86	68.17	61.35	67.09	69.28
3/30/2005	85.93	89.25	88.57	82.62	92.03	94.85
6/29/2005	86.32	87.51	86.79	80.48	89.88	92.84
9/20/2005	77.58	76.67	75.94	67.37	78.58	82.54
South Gate #1						Reference Point Elevation: 90.96
Depth of Well	1440-1460	1320-1340	910-930	565-585	220-240	
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Lynwood/Silverado	Exposition	
1/5/2005	-6.3	-4.18	-1.21	-3.07	32.61	
4/7/2005	2.68	4.18	5.76	-0.96	33.51	
6/29/2005	2.17	2.95	2.89	-6.65	33.31	
9/29/2005	-3.57	-0.53	3.9	-7.49	33.75	
Westchester #1						Reference Point Elevation: 124.27
Depth of Well	740-760	560-580	455-475	310-330	215-235	
Aquifer Name	Pico	Lower San Pedro	Silverado	Lynwood	Gage	
12/3/2004	-2.93	6.25	6.62	6.81	6.94	
12/30/2004	-2.32	6.28	6.46	6.6	6.72	
3/30/2005	-2.37	6.72	7.09	7.31	7.5	
3/10/2005	-2	6.68	7.1	7.35	7.55	
6/27/2005	-1.39	7	7.35	7.56	7.61	
9/19/2005	-0.51	7.11	7.39	7.53	7.69	
Whittier #1						Reference Point Elevation: 217.17
Depth of Well	1180-1200	920-940	600-620	450-470	200-220	
Aquifer Name	Pico	Sunnyside	Silverado	Jefferson	Gage	
10/29/2004	117.38	117.45	110.69	108.97	197.66	
12/30/2004	117.57	117.56	110.98	109.32	198.18	
4/7/2005	118.88	120.1	112.76	111.45	201.98	
7/5/2005	120	120	114.73	113.6	201.71	
9/28/2005	121.54	121.62	115.55	114.38	201.52	
Willowbrook #1						Reference Point Elevation: 96.21
Depth of Well	885-905	500-520	360-380	200-220		
Aquifer Name	Pico	Silverado	Lynwood	Gage		
12/30/2004	-43.77	-32.51	-25.72	-25.4		
3/15/2005	-37.23	-31.07	-24.36	-24.11		
6/28/2005	-29.1	-30.01	-24.11	-23.63		
9/22/2005	-40.35	-31.64	-24.6	-24.43		
Wilmington #1						Reference Point Elevation: 37.96
Depth of Well	915-935	780-800	550-570	225-245	120-140	
Aquifer Name	Sunnyside	Sunnyside	Silverado	Lynwood	Gage	
12/29/2004	-54.02	-54.3	-54.44	-22.52	-18.87	
3/29/2005	-52.67	-52.9	-53.04	-21.85	-18.47	
3/8/2005	-52.39	-52.71	-52.78	-20.99	-17.47	
6/28/2005	-51.6	-51.83	-52	-19.75	-16.22	
9/6/2005	-51.13	-51.35	-51.48	-19.7	-16.18	
9/26/2005	-50.88	-51.12	-51.3	-19.62	-16.07	
Wilmington #2						Reference Point Elevation: 29.78
Depth of Well	950-970	755-775	540-560	390-410	120-140	
Aquifer Name	Sunnyside	Silverado	Lynwood	Lynwood	Gage	
12/27/2004	-40.64	-35.8	-31.17	-30.34	-9.95	
3/29/2005	-38.94	-34.14	-29.6	-28.8	-9.69	
6/30/2005	-37.68	-32.87	-28.25	-27.51	-8.96	
9/27/2005	-37.63	-33.16	-28.78	-28.04	-8.38	
Whittier Narrows #1						Reference Point Elevation: 215.14
Depth of Well	749-769	609.5-629	462.5-482.5	392.5-402	334-343.5	272.5-282.5
Aquifer Name	Sunnyside	Sunnyside	Sunnyside	Silverado	Silverado	Lynwood
10/29/2004	170.57	172.98	177.54	187.49	187.76	189.66
				ZONE 7	**ZONE 8**	**ZONE 9**
				233.5-243	163-173	95-104.5
				Jefferson	Gardena	Gaspur
10/29/2004				189.56	189.56	190.2

TABLE 4.1
MAJOR MINERAL WATER QUALITY GROUPS

GROUP A Generally Calcium Bicarbonate or Calcium Bicarbonate/Sulfate Dominant	GROUP B Generally Calcium-Sodium-Bicarbonate or Sodium-Bicarbonate Dominant	GROUP C Generally Sodium-Chloride Dominant	OTHER Generally Different Than Groups A, B, and C
CENTRAL BASIN			
Cerritos #1 Zones 1, 2, 3, 4, 5, 6 Commerce #1 Zones 2,3,4,5,6 Downey #1 Zones 2, 3, 4, 5, 6 Huntington Park #1 Zones 1, 2, 3, 4 Lakewood #1 Zone 6 Long Beach #1 Zones 5,6 Long Beach #2 Zones 4,5,6 Rio Hondo #1 Zones 1, 2, 3, 4, 5, 6, Pico #1 Zones 2, 3, 4 Pico #2 Zones 1, 2, 3, 4, 5, 6 South Gate #1 Zones 1, 2, 3, 4, 5 Whittier #1 Zones 1,2,3,4,5 Willowbrook #1 Zones 2, 3, 4 Los Angeles #1 Zones 1, 2, 3, 4, 5 Montebello #1 Zones 3, 4, 5 Cerritos #2 Zones 1, 2, 3, 4, 5, 6 Compton #1 Zones 2,3,4,5 Norwalk #1 Zones 1,2,3	Downey #1 Zone 1 Inglewood #2 Zones 1,3 Lakewood #1 Zones 1,2, 3, 4, 5 La Mirada #1 Zones 1, 2, 3, 4 Willowbrook #1 Zone 1 Long Beach #1 Zones 1,2,3,4 Long Beach #2 Zones 1,2,3 Santa Fe Springs #1 Zone 3 Long Beach #6 Zones 1,2 ,3 ,4 ,5 ,6 Montebello #1 Zone 2 Compton #1 Zone 1	Inglewood #2 Zone 2	La Mirada #1 Zone 5 Pico #1 Zone 1 Santa Fe Springs #1 Zones 1,2,4
WEST COAST BASIN			
Carson #1 Zones 3, 4 Gardena #1 Zones 2, 3, 4 Hawthorne #1 Zones 5,6 Inglewood #1 Zones 3, 4, 5 PM-3 Madrid Zones 3,4	Carson #1 Zones 1, 2 Hawthorne #1 Zones 1,2,3,4 PM-3 Madrid Zone 2 Wilmington #2 Zone 3 Long Beach #3 Zones 1, 2, 3 Carson #2 Zones 1, 2, 3, 4, 5 Westchester #1 Zones 1, 2, 3, 4, 5	PM-4 Mariner Zones 2,3,4 Wilmington #1 Zones 1, 2, 3, 4, 5 Wilmington #2 Zones 4, 5 Long Beach #3 Zones 4, 5	Gardena #1 Zone 1 Inglewood #1 Zone 1 Lomita #1 Zones 1, 2, 3, 4, 5, 6 PM-3 Madrid Zone 1 PM-4 Mariner Zone 1 Wilmington #2 Zone 1,2

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1	Cerritos #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				04/13/05	09/28/05	04/13/05	09/28/05	04/13/05	09/28/05	04/13/05	09/28/05	04/13/05	09/28/05	04/13/05	09/28/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	210	280	260	270	320	330	270	280	270	250	260	250
Cation Sum	meq/l			4.75	4.85	4.35	4.47	5.76	5.39	4.86	4.95	4.56	4.63	4.6	4.7
Anion Sum	meq/l			4.7	4.58	4.34	4.22	5.34	5.24	4.74	4.64	4.52	4.38	4.59	4.44
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	0.071	0.084	0.049	0.057	0.059	0.063
Manganese, Total, ICAP/MS	ug/l	50	S	25	27	29	30	44	42	**74**	**74**	**110**	**110**	**140**	**140**
Turbidity	NTU	5	S	0.2	0.15	0.2	0.1	0.25	0.3	0.45	0.3	0.35	0.2	0.2	0.3
Alkalinity	mg/l			165	156	158	149	176	167	181	173	182	173	191	182
Boron	mg/l			0.073	0.095	0.056	0.071	0.076	0.095	0.086	0.093	0.078	0.096	0.073	0.085
Bicarbonate as HCO3,calculated	mg/l			200	189	192	181	214	203	220	211	221	210	232	221
Calcium, Total, ICAP	mg/l			34	35	33	34	47	43	45	46	39	39	45	46
Carbonate as CO3, Calculated	mg/l			3.26	2.45	2.49	2.35	2.2	2.09	2.27	ND	1.81	ND	1.51	ND
Hardness (Total, as CaCO3)	mg/l			104	107	104	108	144	132	158	160	136	138	151	154
Chloride	mg/l	500	S	13.2	14.3	11.5	12.3	18.1	19.8	11.2	12.2	9.33	9.99	8.99	9.59
Fluoride	mg/l	2	P	0.25	0.28	0.35	0.39	0.34	0.37	0.53	0.58	0.45	0.51	0.3	0.34
Hydroxide as OH, Calculated	mg/l			0.04	ND	0.03	ND	0.03	ND	0.03	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None			0.79	0.68	0.66	0.64	0.76	0.7	0.75	0.44	0.59	0.47	0.57	0.56
Magnesium, Total, ICAP	mg/l			4.6	4.8	5.2	5.5	6.4	6	11	11	9.4	9.8	9.4	9.5
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.4	2.2	2.3	2.1	2.4	2.1	2.1	2	2	2	2.2	2.1
Sodium, Total, ICAP	mg/l			60	61	51	52	65	62	38	39	41	42	35	36
Sulfate	mg/l	500	S	48.5	50.2	40.2	41.8	62.1	63.6	37.4	38.7	28.7	29.2	24.2	24.7
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			ND	0.3	ND	ND	ND	ND	ND	0.32	ND	0.35	ND	0.37
Carbon Dioxide	mg/l			1.59	ND	1.92	ND	2.7	2.1	2.78	4.36	3.51	3.44	4.64	3.62
General Physical															
Apparent Color	ACU	15	S	ND	3	3	ND	3	3	3	3	5	3	3	3
Lab pH	Units			8.4	8.3	8.3	8.3	8.2	8.2	8.2	7.9	8.1	8	8	8
Odor	TON	3	S	2	1	**3**	1	2	1	1	2	**3**	2	2	1
pH of CaCO3 saturation(25C)	Units			7.61	7.62	7.64	7.66	7.44	7.5	7.45	7.46	7.51	7.53	7.43	7.44
pH of CaCO3 saturation(60C)	Units			7.17	7.18	7.2	7.21	7	7.06	7.01	7.01	7.06	7.09	6.98	6.99
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	458	339	425	316	523	378	453	334	412	322	421	328
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	15	14	11	11	19	18	6.4	5.5	13	9.3	41	36
Barium, Total, ICAP/MS	ug/l	1000	P	50	48	100	100	130	110	62	61	79	78	100	100
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	1.2	ND	1.3	ND	1.7	ND	1.9	ND	1.8	ND	1.7	ND
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Cerritos #2 Zone 1 04/11/05	Cerritos #2 Zone 1 09/27/05	Cerritos #2 Zone 2 04/11/05	Cerritos #2 Zone 2 09/27/05	Cerritos #2 Zone 3 04/11/05	Cerritos #2 Zone 3 09/27/05	Cerritos #2 Zone 4 04/11/05	Cerritos #2 Zone 4 09/27/05	Cerritos #2 Zone 5 04/11/05	Cerritos #2 Zone 5 09/27/05	Cerritos #2 Zone 6 04/11/05	Cerritos #2 Zone 6 09/27/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	210	200	480	490	220	200	230	230	240	230	950	920
Cation Sum	meq/l			3.66	3.77	8.23	8.18	3.69	3.76	4.26	4.28	4.17	4.24	16.2	15.7
Anion Sum	meq/l			3.63	3.63	8.07	7.93	3.79	3.61	4.22	4.04	4.14	3.96	16.1	15.2
Iron, Total, ICAP	mg/l	0.3	S	0.067	ND	ND	ND	0.023	ND	0.043	0.031	0.092	0.094	0.26	0.24
Manganese, Total, ICAP/MS	ug/l	50	S	20	17	ND	ND	48	41	**80**	**74**	**110**	**97**	**510**	**460**
Turbidity	NTU	5	S	0.25	0.1	0.2	0.2	**5.9**	0.1	0.55	0.4	0.2	0.35	1.4	1.7
Alkalinity	mg/l			154	148	176	170	172	155	185	175	183	173	355	337
Boron	mg/l			ND	0.068	0.1	0.13	0.057	0.068	0.069	0.098	0.065	0.082	0.1	0.12
Bicarbonate as HCO3,calculated	mg/l			187	180	214	207	209	188	225	213	222	210	432	410
Calcium, Total, ICAP	mg/l			42	43	98	97	43	44	51	51	51	52	200	190
Carbonate as CO3, Calculated	mg/l			1.93	ND	1.75	ND	2.71	ND	2.32	2.19	2.29	2.16	2.81	2.12
Hardness (Total, as CaCO3)	mg/l			127	130	319	316	131	135	162	163	157	160	664	639
Chloride	mg/l	500	S	5.11	7.41	66.3	66.6	ND	5.14	5.44	5.79	5.25	5.55	141	128
Fluoride	mg/l	2	P	0.26	0.29	0.37	0.38	0.33	0.31	0.42	0.43	0.37	0.36	0.37	0.37
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.02	ND	0.03	ND	0.03	ND	0.03	ND	0.02	ND
Langelier Index - 25 degree	None			0.65	0.54	0.98	0.76	0.81	0.67	0.81	0.79	0.81	0.79	1.5	1.4
Magnesium, Total, ICAP	mg/l			5.4	5.6	18	18	5.8	6	8.3	8.6	7.2	7.4	40	40
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	3.15	3.07	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.7	2.8	4.2	4.1	2.5	2.5	2.6	2.7	2.7	2.9	5	4.7
Sodium, Total, ICAP	mg/l			24	25	40	40	23	23	22	22	22	22	64	63
Sulfate	mg/l	500	S	18.6	21.6	117	116	16	16.6	16.5	16.9	15.2	15.7	239	230
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	3.15	3.07	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			ND	0.34	ND	0.5	ND	0.34	ND	ND	ND	ND	1.51	1.84
Carbon Dioxide	mg/l			2.36	2.34	3.4	4.27	2.09	ND	2.84	2.2	2.8	2.17	8.64	8.47
General Physical															
Apparent Color	ACU	15	S	ND	ND	ND	ND	3	3	3	3	3	3	5	3
Lab pH	Units			8.2	8.1	8.1	7.9	8.3	8.2	8.2	8.2	8.2	8.2	8	7.9
Odor	TON	3	S	**3**	2	**3**	1	**8**	**3**	**8**	2	**8**	**3**	**8**	2
pH of CaCO3 saturation(25C)	Units			7.55	7.56	7.12	7.14	7.49	7.53	7.39	7.41	7.39	7.41	6.51	6.55
pH of CaCO3 saturation(60C)	Units			7.11	7.11	6.68	6.7	7.05	7.08	6.94	6.97	6.95	6.96	6.06	6.11
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	338	318	786	779	343	370	392	375	388	368	1420	1430
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	2.7	2.3	2.2	1.9	3.6	2.8	9.8	9.2	18	17	3.3	2.8
Barium, Total, ICAP/MS	ug/l	1000	P	99	95	170	170	110	120	160	150	170	160	110	94
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2	2.7	3.5	4.6	2.5	3.1	2.1	2.6	1.9	2.5	4.7	5.2
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.1	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 3 of 22

Water Quality Constituents	Units	MCL	MCL Type	Commerce #1	Commerce #1	Commerce #1	Commerce #1	Commerce #1
				Zone 2	Zone 3	Zone 4	Zone 5	Zone 6
				08/31/05	08/31/05	08/31/05	08/31/05	08/31/05
General Mineral								
Total Dissolved Solid (TDS)	mg/l	1000	S	640	470	490	430	370
Cation Sum	meq/l			11.7	8.22	8.53	7.8	6.7
Anion Sum	meq/l			11.4	7.92	8.29	7.24	6.25
Iron, Total, ICAP	mg/l	0.3	S	ND	0.11	0.067	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	14	**56**	**66**	ND	ND
Turbidity	NTU	5	S	1.3	0.5	0.45	1.8	1.3
Alkalinity	mg/l			297	209	194	176	166
Boron	mg/l			0.49	0.22	0.25	0.15	0.13
Bicarbonate as HCO3,calculated	mg/l			362	254	236	214	202
Calcium, Total, ICAP	mg/l			58	63	49	70	60
Carbonate as CO3, Calculated	mg/l			ND	2.08	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			252	244	205	274	228
Chloride	mg/l	500	S	194	87.6	111	59.6	56
Fluoride	mg/l	2	P	0.38	0.38	0.45	0.45	0.49
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			0.78	0.86	0.52	0.53	0.54
Magnesium, Total, ICAP	mg/l			26	21	20	24	19
Mercury	ug/l	2	P	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	4.05	6.21
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.9	3.3	3.3	2.3	1.8
Sodium, Total, ICAP	mg/l			150	75	100	52	48
Sulfate	mg/l	500	S	ND	59.9	60.2	82.7	42.2
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	4.05	6.21
Total Organic Carbon	mg/l			3.36	0.89	0.8	0.3	ND
Carbon Dioxide	mg/l			7.47	3.31	4.87	5.56	4.17
General Physical								
Apparent Color	ACU	15	S	**20**	3	5	3	3
Lab pH	Units			7.9	8.1	7.9	7.8	7.9
Odor	TON	3	S	**8**	**4**	**3**	2	2
pH of CaCO3 saturation(25C)	Units			7.12	7.24	7.38	7.27	7.36
pH of CaCO3 saturation(60C)	Units			6.68	6.8	6.94	6.82	6.92
Radon	pCi/l							
Specific Conductance	umho/cm	1600	S	1000	689	742	604	526
Metal								
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	1	ND
Barium, Total, ICAP/MS	ug/l	1000	P	86	93	250	81	56
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	4.8	7.7
Hexavalent Chromium (Cr VI)	mg/l							
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND
Volatile Organic Compounds								
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	1.2	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	1.4	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND
Perchlorate	ug/l							

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Compton #1 Zone 1 03/14/05	Compton #1 Zone 1 09/15/05	Compton #1 Zone 2 08/15/05	Compton #1 Zone 3 03/14/05	Compton #1 Zone 3 09/15/05	Compton #1 Zone 4 03/14/05	Compton #1 Zone 4 09/15/05	Compton #1 Zone 5 03/14/05	Compton #1 Zone 5 09/15/05
General Mineral												
Total Dissolved Solid (TDS)	mg/l	1000	S	220	220	290	300	300	350	330	330	310
Cation Sum	meq/l			3.78	3.77	4.86	5.15	5.32	5.43	5.64	5.45	5.74
Anion Sum	meq/l			3.67	3.58	4.58	4.98	4.81	5.42	5.17	5.42	5.2
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	0.035	0.035	0.11	0.1	0.064	0.071
Manganese, Total, ICAP/MS	ug/l	50	S	12	12	27	**65**	**62**	**100**	**94**	**57**	**73**
Turbidity	NTU	5	S	0.75	0.3	0.5	2.2	1.3	0.9	1.6	0.9	1.8
Alkalinity	mg/l			162	161	138	156	153	164	158	176	172
Boron	mg/l			0.13	0.16	0.095	0.1	0.12	0.08	0.1	0.12	0.13
Bicarbonate as HCO3,calculated	mg/l			196	195	167	189	186	199	192	214	209
Calcium, Total, ICAP	mg/l			19	19	41	48	49	59	60	56	57
Carbonate as CO3, Calculated	mg/l			4.03	3.18	2.17	2.45	ND	2.58	ND	2.2	ND
Hardness (Total, as CaCO3)	mg/l			54	54.4	117	156	160	172	176	180	188
Chloride	mg/l	500	S	13.3	12.4	21.2	23	20.7	20.7	18.6	19.1	16.7
Fluoride	mg/l	2	P	0.37	0.27	0.33	0.32	0.24	0.32	0.23	0.41	0.39
Hydroxide as OH, Calculated	mg/l			0.05	ND	0.03	0.03	ND	0.03	ND	0.03	ND
Langelier Index - 25 degree	None			0.63	0.52	0.69	0.81	0.61	0.92	0.62	0.83	0.63
Magnesium, Total, ICAP	mg/l			1.6	1.6	3.5	8.7	9.1	6.1	6.4	9.7	11
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			1.7	1.6	1.8	2.9	3.1	2.6	2.7	2.6	2.8
Sodium, Total, ICAP	mg/l			61	61	57	45	47	44	47	41	44
Sulfate	mg/l	500	S	1.73	ND	57.6	57.3	55.5	74.1	70.8	64.5	60.8
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			2.86	3.24	0.8	0.59	0.75	ND	ND	ND	ND
Carbon Dioxide	mg/l			1.24	ND	1.37	1.89	2.42	1.99	3.15	2.7	3.43
General Physical							5					
Apparent Color	ACU	15	S	**30**	**30**	5	8.3	5	3	3	3	3
Lab pH	Units			8.5	8.4	8.3	3	8.1	8.3	8	8.2	8
Odor	TON	3	S	**3**	**4**	**4**	**7.49**	**4**	**3**	**4**	**3**	**3**
pH of CaCO3 saturation(25C)	Units			7.87	7.88	7.61	7.04	7.49	7.38	7.38	7.37	7.37
pH of CaCO3 saturation(60C)	Units			7.43	7.43	7.16	85	7.04	6.93	6.94	6.92	6.92
Radon	pCi/l			ND		ND			240		ND	
Specific Conductance	umho/cm	1600	S	328	349	362	467	472	504	503	505	494
Metal												
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	1.1	ND	34	31	23	26
Barium, Total, ICAP/MS	ug/l	1000	P	5.9	5.3	14	60	53	170	140	110	90
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.7	3	ND	2.7	3.1	2.6	2.9	2.3	3.2
Hexavalent Chromium (Cr VI)	mg/l			ND		ND			ND		ND	
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds												
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l			ND		ND	ND		ND		ND	

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1	Downey #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				04/28/05	09/21/05	04/28/05	09/21/05	04/28/05	09/21/05	04/28/05	09/21/05	04/28/05	09/21/05	04/28/05	09/21/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	210	200	390	390	500	490	550	540	410	390	940	920
Cation Sum	meq/l			3.69	3.69	6.39	6.39	7.96	7.91	9.08	9.08	7.07	5.18	15.7	15.7
Anion Sum	meq/l			3.85	3.51	6.24	6.08	8	7.76	6.74	8.81	7.03	6.54	15.4	15.2
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	ND	ND	ND	ND	ND	ND	ND	**120**	**110**	**74**	**71**
Turbidity	NTU	5	S	0.2	0.1	0.3	0.6	0.25	0.4	0.3	0.3	2.8	2.8	0.8	1.7
Alkalinity	mg/l			174	150	168	155	175	160	202	187	219	199	354	340
Boron	mg/l			0.06	0.063	0.074	0.072	0.086	0.15	0.2	0.2	0.093	0.21	0.22	0.24
Bicarbonate as HCO3,calculated	mg/l			211	182	204	188	213	195	246	228	266	242	431	414
Calcium, Total, ICAP	mg/l			41	41	81	81	100	100	97	97	89	27	180	180
Carbonate as CO3, Calculated	mg/l			2.74	ND	2.1	ND	1.38	ND	2.01	ND	2.18	ND	3.53	ND
Hardness (Total, as CaCO3)	mg/l			126	127	256	256	328	328	325	325	292	133	598	602
Chloride	mg/l	500	S	ND	5	31.9	34.6	63.5	64.9	36	73.8	34.5	34.5	102	108
Fluoride	mg/l	2	P	0.33	0.36	0.29	0.31	0.35	0.37	0.41	0.52	0.38	0.52	0.3	0.39
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.03	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None			0.79	0.63	0.97	0.84	0.88	0.85	1	0.9	1	0.37	1.5	1.2
Magnesium, Total, ICAP	mg/l			5.8	5.9	13	13	19	19	20	20	17	16	36	37
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	1.85	1.88	2.98	2.99	ND	2.05	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.9	2.8	3.6	3.6	3.4	3.3	4.3	4.3	3.6	2.9	5.9	5.9
Sodium, Total, ICAP	mg/l			25	25	27	27	30	29	57	57	26	56	82	81
Sulfate	mg/l	500	S	16.7	16.8	87.8	89.2	119	120	79.7	135	79.6	74.7	261	255
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	1.85	1.88	2.98	2.99	ND	2.05	ND	ND	ND	ND
Total Organic Carbon	mg/l			ND	ND	ND	ND	ND	ND	0.48	0.49	ND	ND	0.65	0.74
Carbon Dioxide	mg/l			2.12	ND	2.57	2.45	4.26	3.2	3.91	3.74	4.23	3.97	6.85	10.8
General Physical															
Apparent Color	ACU	15	S	ND	ND	ND	ND	ND	ND	ND	ND	3	ND	ND	ND
Lab pH	Units			8.3	8.2	8.2	8.1	8	8	8.1	8	8.1	8	8.1	7.8
Odor	TON	3	S	1	1	1	1	1	1	1	1	1	1	1	1
pH of CaCO3 saturation(25C)	Units			7.51	7.57	7.23	7.26	7.12	7.15	7.07	7.1	7.07	7.63	6.56	6.57
pH of CaCO3 saturation(60C)	Units			7.06	7.13	6.78	6.82	6.67	6.71	6.62	6.66	6.63	7.18	6.11	6.13
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	329	302	579	537	741	677	823	766	633	557	1310	1240
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	3.1	2.4	2.5	2	3.2	2.7	2.1	1.7	4.5	3.9	2.8	2
Barium, Total, ICAP/MS	ug/l	1000	P	98	98	170	170	140	140	98	95	240	230	73	76
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	3.3	3	2	1.8	1.5	1.1	ND	ND	ND	ND	1.2	ND
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	0.9	0.8	1.4	1.1
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.8	0.6	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.5	2.6
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 6 of 22

Water Quality Constituents	Units	MCL	MCL Type	Huntington Park #1	Huntington Park #1	Huntington Park #1	Huntington Park #1
				Zone 1	Zone 2	Zone 3	Zone 4
				09/22/05	09/22/05	09/22/05	09/22/05
General Mineral							
Total Dissolved Solid (TDS)	mg/l	1000	S	360	350	480	660
Cation Sum	meq/l			6.16	6.11	8.25	11.1
Anion Sum	meq/l			5.79	5.81	7.84	10.8
Iron, Total, ICAP	mg/l	0.3	S	0.23	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	49	ND	ND	ND
Turbidity	NTU	5	S	1.8	0.5	0.25	0.35
Alkalinity	mg/l			171	173	188	261
Boron	mg/l			0.14	0.15	0.16	0.17
Bicarbonate as HCO3,calculated	mg/l			208	210	229	318
Calcium, Total, ICAP	mg/l			62	61	86	120
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			217	214	301	427
Chloride	mg/l	500	S	20.4	21.5	41.2	59.9
Fluoride	mg/l	2	P	0.54	0.47	0.41	0.4
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND
Langelier Index - 25 degree	None			0.57	0.66	0.75	0.84
Magnesium, Total, ICAP	mg/l			15	15	21	31
Mercury	ug/l	2	P	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	2.86	4.79
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.3	3.3	3.7	4.6
Sodium, Total, ICAP	mg/l			40	40	49	57
Sulfate	mg/l	500	S	84.6	82.7	129	170
Surfactants	mg/l	0.5	S	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	2.86	4.79
Total Organic Carbon	mg/l			ND	ND	ND	0.32
Carbon Dioxide	mg/l			4.29	3.44	4.73	10.4
General Physical							
Apparent Color	ACU	15	S	3	ND	3	ND
Lab pH	Units			7.9	8	7.9	7.7
Odor	TON	3	S	1	1	1	1
pH of CaCO3 saturation(25C)	Units			7.33	7.34	7.15	6.86
pH of CaCO3 saturation(60C)	Units			6.89	6.89	6.71	6.42
Radon	pCi/l						
Specific Conductance	umho/cm	1600	S	507	521	679	911
Metal							
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	61	76	96	95
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	5.5	ND
Hexavalent Chromium (Cr VI)	mg/l						
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	6.4
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND
Volatile Organic Compounds							
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	**5.8**	0.7
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	0.8	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	**5.8**	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND
Perchlorate	ug/l						

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 7 of 22

Water Quality Constituents	Units	MCL	MCL Type	Inglewood #2 Zone 1 04/06/05	Inglewood #2 Zone 1 09/07/05	Inglewood #2 Zone 2 04/06/05	Inglewood #2 Zone 2 09/07/05	Inglewood #2 Zone 3 04/06/05	Inglewood #2 Zone 3 09/07/05
General Mineral									
Total Dissolved Solid (TDS)	mg/l	1000	S	**1640**	**1620**	**1520**	**1490**	280	300
Cation Sum	meq/l			28.6	29	25.8	26.7	5.23	5.51
Anion Sum	meq/l			28.7	27.4	26.5	25.3	5.1	5.02
Iron, Total, ICAP	mg/l	0.3	S	**0.59**	**0.6**	**0.38**	**0.42**	0.13	
Manganese, Total, ICAP/MS	ug/l	50	S	31	26	34	34	41	41
Turbidity	NTU	5	S	3.4	2.1	**16**	**26**	1.8	
Alkalinity	mg/l			1390	1330	1300	1240	230	226
Boron	mg/l			3.7	3.7	3.2	3.3	0.2	0.19
Bicarbonate as HCO3,calculated	mg/l			1690	1620	1580	1510	279	275
Calcium, Total, ICAP	mg/l			17	17	12	12	32	33
Carbonate as CO3, Calculated	mg/l			21.9	13.3	20.5	15.6	3.62	2.25
Hardness (Total, as CaCO3)	mg/l			112	112	67.8	69.1	129	132
Chloride	mg/l	500	S	29.4	27.8	17.9	17.4	17.1	17.1
Fluoride	mg/l	2	P	0.56	0.62	0.34	0.37	0.25	
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.03	ND	0.03	ND
Langelier Index - 25 degree	None			1.3	1.1	1.1	1	0.81	0.61
Magnesium, Total, ICAP	mg/l			17	17	9.2	9.5	12	12
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			26	25	19	19	6.4	6.9
Sodium, Total, ICAP	mg/l			590	600	550	570	57	62
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND
Surfactants	mg/l	0.5	S	0.074	0.052	0.055	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			37.5	38.2	21.2	23.4	1.07	1.45
Carbon Dioxide	mg/l			16.9	21.1	15.8	15.6	2.8	3.58
General Physical									
Apparent Color	ACU	15	S	**500**	**400**	**250**	**300**	10	10
Lab pH	Units			8.3	8.1	8.3	8.2	8.3	8.1
Odor	TON	3	S	**17**	**8**	**17**	**8**	**4**	**8**
pH of CaCO3 saturation(25C)	Units			6.99	7.01	7.17	7.19	7.49	7.49
pH of CaCO3 saturation(60C)	Units			6.54	6.56	6.72	6.74	7.05	7.04
Radon	pCi/l								
Specific Conductance	umho/cm	1600	S	**2520**	**2390**	**2330**	**2230**	492	
Metal									
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	1.6	1.2	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	45	39	24	21	16	15
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	2.4	1.6	2	2.3	1.8
Hexavalent Chromium (Cr VI)	mg/l								
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	0.91	ND	0.64	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND
Perchlorate	ug/l								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1	La Mirada #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5
				03/23/05	09/26/05	03/23/05	09/26/05	03/23/05	09/26/05	03/23/05	09/26/05	03/23/05	09/26/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	1000	S	320	360	260	250	260	310	470	420	490	520
Cation Sum	meq/l			5.37	5.87	4.28	4.37	4.54	5.64	8.12	7.53	8.34	9.05
Anion Sum	meq/l			5.31	5.27	4.32	4.21	4.53	5.82	8.18	7.01	8.46	8.6
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	8.4	10	5.4	5.4	12	18	4.2	35	5.3	26
Turbidity	NTU	5	S	0.45	0.2	0.2	0.25	0.2	0.8	0.35	1.2	0.35	0.45
Alkalinity	mg/l			146	182	143	137	154	153	205	193	196	186
Boron	mg/l			0.12	0.15	0.098	0.1	0.099	0.14	0.12	0.13	0.13	0.15
Bicarbonate as HCO3,calculated	mg/l			177	221	173	166	186	185	249	235	238	226
Calcium, Total, ICAP	mg/l			15	15	9.7	9.8	20	23	62	51	62	65
Carbonate as CO3, Calculated	mg/l			3.64	2.87	3.56	3.41	3.82	3.02	2.04	ND	1.55	ND
Hardness (Total, as CaCO3)	mg/l			50.6	51.5	31.2	31.5	71.8	87.1	245	206	241	257
Chloride	mg/l	500	S	22.4	15.1	14.3	14.6	13.6	25.9	65.8	40.8	78.6	89.2
Fluoride	mg/l	2	P	0.82	0.76	0.59	0.6	0.65	0.82	0.47	0.57	0.37	0.41
Hydroxide as OH, Calculated	mg/l			0.05	ND	0.05	ND	0.05	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None			0.48	0.38	0.28	0.27	0.63	0.58	0.84	0.73	0.72	0.72
Magnesium, Total, ICAP	mg/l			3.2	3.4	1.7	1.7	5.3	7.2	22	19	21	23
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	0.735	ND	3.47	3.76
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.2	2.1	1.8	1.6	2.2	2.6	3.2	2.8	2.9	3
Sodium, Total, ICAP	mg/l			99	110	83	85	70	88	72	77	79	88
Sulfate	mg/l	500	S	82.4	56.1	49.3	49.5	49.5	95.3	102.9	94.6	98.5	99.5
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	0.735	ND	3.47	3.76
Total Organic Carbon	mg/l			0.54	0.35	ND	ND	0.59	0.46	ND	ND	ND	ND
Carbon Dioxide	mg/l			1.12	ND	1.09	ND	1.18	ND	3.96	3.06	4.76	3.71
General Physical													
Apparent Color	ACU	15	S	3	3	ND	ND	5	5	ND	ND	3	ND
Lab pH	Units			8.5	8.3	8.5	8.5	8.5	8.4	8.1	8.1	8	8
Odor	TON	3	S	1	1	1	1	2	1	2	1	1	2
pH of CaCO3 saturation(25C)	Units			8.02	7.92	8.22	8.23	7.87	7.82	7.26	7.37	7.28	7.28
pH of CaCO3 saturation(60C)	Units			7.58	7.48	7.78	7.79	7.43	7.37	6.81	6.92	6.83	6.83
Radon	pCi/l												
Specific Conductance	umho/cm	1600	S	510	525	410	432	418	597	743	702	775	866
Metal													
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	8.6	6	7.7	6.5	7.7	5.6	3.9	3.1	1.8	1.4
Barium, Total, ICAP/MS	ug/l	1000	P	57	61	24	23	39	45	70	52	59	62
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	2.4	ND	1.7	ND	2.4	1.5	2.7	2.1	4.1
Hexavalent Chromium (Cr VI)	mg/l												
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	6.2	9.5
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	5.8	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l												

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1	Lakewood #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				03/24/05	09/08/05	03/24/05	09/08/05	03/24/05	09/08/05	03/24/05	09/08/05	03/24/05	09/08/05	03/24/05	09/08/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	180	170	200	180	230	210	300	310	240	220	410	400
Cation Sum	meq/l			2.83	2.83	3.37	3.37	3.82	3.82	5.32	5.47	4.2	4.32	7.15	6.98
Anion Sum	meq/l			2.87	2.67	3.37	3.13	3.82	3.58	5.41	5.14	4.21	3.91	7.13	6.57
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	0.092	0.084	0.093	0.093	0.084	0.097
Manganese, Total, ICAP/MS	ug/l	50	S	4.3	5.9	17	17	24	25	**140**	**120**	**50**	48	**250**	**230**
Turbidity	NTU	5	S	0.45	0.3	0.5	0.15	2.9	2.9	0.6	0.3	0.3	0.3	0.5	0.7
Alkalinity	mg/l			100	89.2	144	131	163	150	173	155	182	167	214	192
Boron	mg/l			ND	ND	ND	ND	0.059	ND	0.068	ND	0.079	0.061	0.082	0.058
Bicarbonate as HCO3,calculated	mg/l			120	107	175	159	198	182	210	188	221	203	261	234
Calcium, Total, ICAP	mg/l			10	9.9	33	32	40	40	60	59	47	48	93	89
Carbonate as CO3, Calculated	mg/l			4.92	3.49	2.27	2.06	2.57	2.36	1.72	ND	1.81	ND	0.85	ND
Hardness (Total, as CaCO3)	mg/l			26.4	26.1	98.5	96	120	120	182	178	152	156	270	259
Chloride	mg/l	500	S	18.7	18.5	5.63	5.89	7.91	8.02	56.1	59.1	9.36	9.13	67.3	63.3
Fluoride	mg/l	2	P	0.49	0.51	0.26	0.28	0.32	0.33	0.31	0.35	0.52	0.55	0.23	0.24
Hydroxide as OH, Calculated	mg/l			0.1	ND	0.03	ND	0.03	ND	0.02	ND	0.02	ND	0.009	ND
Langelier Index - 25 degree	None			0.43	0.28	0.62	0.56	0.75	0.72	0.76	0.7	0.67	0.64	0.64	0.77
Magnesium, Total, ICAP	mg/l			0.34	0.34	3.9	3.9	5	5	7.7	7.5	8.5	8.8	9.2	9
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			ND	ND	2	2.1	2.3	2.4	2.9	3	2.6	2.7	3.7	3.8
Sodium, Total, ICAP	mg/l			53	53	31	32	31	31	37	42	25	26	38	39
Sulfate	mg/l	500	S	15.2	16.2	15.3	16	15.6	16.1	16.9	16.8	13.3	13.5	45.1	44.8
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	0.159	0.122	ND	ND	0.065	0.054
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.77	0.95	ND	ND	ND	ND	0.66	0.78	ND	ND	0.58	0.78
Carbon Dioxide	mg/l			0.38	ND	1.75	ND	1.98	ND	3.34	2.45	3.51	2.64	10.4	4.83
General Physical															
Apparent Color	ACU	15	S	10	**15**	3	ND	3	3	5	5	5	3	5	3
Lab pH	Units			8.8	8.7	8.3	8.3	8.3	8.3	8.1	8.1	8.1	8.1	7.7	7.9
Odor	TON	3	S	**17**	**3**	**8**	**3**	**8**	**3**	**8**	**3**	**3**	**3**	**4**	**3**
pH of CaCO3 saturation(25C)	Units			8.37	8.42	7.68	7.74	7.55	7.58	7.34	7.4	7.43	7.46	7.06	7.13
pH of CaCO3 saturation(60C)	Units			7.93	7.98	7.24	7.3	7.1	7.14	6.9	6.95	6.98	7.01	6.62	6.68
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	280	268	309	288	348	327	525	534	387	353	682	667
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	13	12	1.7	1.6	1.2	1.3	15	12	4.2	4.3	24	22
Barium, Total, ICAP/MS	ug/l	1000	P	17	16	22	20	31	28	150	140	110	100	290	250
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6	ND	2.2
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 10 of 22

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1	Long Beach #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				03/09/05	09/01/05	03/09/05	09/01/05	03/09/05	09/01/05	03/09/05	09/01/05	03/09/05	09/01/05	03/09/05	09/01/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	220	220	210	210	190	190	240	220	**1150**	**1080**	950	880
Cation Sum	meq/l			3.7	3.74	3.44	3.57	3.11	3.07	3.9	3.56	17.9	16.4	15.3	13.7
Anion Sum	meq/l			3.52	3.48	3.4	3.39	2.93	2.95	3.65	3.68	13.1	17.4	14.9	14.3
Iron, Total, ICAP	mg/l	0.3	S	ND	0.023	ND	0.021	ND	ND	ND	ND	0.028	0.038	0.13	0.12
Manganese, Total, ICAP/MS	ug/l	50	S	2.5	2.7	ND	ND	3.9	4.3	21	20	**120**	**120**	**370**	**320**
Turbidity	NTU	5	S	0.4	0.4	0.5	0.5	1.4	1.8	2.6	3.7	1.3	2.8	0.7	1
Alkalinity	mg/l			153	152	147	148	114	116	132	136	133	143	215	220
Boron	mg/l			0.18	0.19	0.18	0.23	0.079	0.069	0.063	0.076	0.051	0.1	0.083	0.094
Bicarbonate as HCO3,calculated	mg/l			182	181	175	176	136	139	160	165	162	174	262	268
Calcium, Total, ICAP	mg/l			2.4	2.3	2.5	2.5	5.2	5.2	20	18	110	100	180	160
Carbonate as CO3, Calculated	mg/l			11.8	11.8	11.4	11.4	7.02	5.7	2.61	2.69	0.664	ND	1.35	ND
Hardness (Total, as CaCO3)	mg/l			6.65	6.61	6.82	6.82	14.3	14.2	58.2	52.4	345	316	573	511
Chloride	mg/l	500	S	15	14.3	15	14	12	11.3	12	11.4	163	312	170	159
Fluoride	mg/l	2	P	0.67	0.66	0.66	0.66	0.68	0.67	0.43	0.42	0.21	0.19	0.31	0.29
Hydroxide as OH, Calculated	mg/l			0.2	ND	0.2	ND	0.1	ND	0.04	ND	0.01	ND	0.01	ND
Langelier Index - 25 degree	None			0.18	0.17	0.2	0.2	0.3	0.21	0.46	0.43	0.61	0.3	1.1	1.1
Magnesium, Total, ICAP	mg/l			0.24	0.21	0.14	0.14	0.31	0.3	2	1.8	17	16	30	27
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			1.1	ND	ND	ND	ND	ND	1.5	1.2	4.6	3.8	4.1	3.5
Sodium, Total, ICAP	mg/l			85	83	76	74	65	64	62	57	250	230	86	78
Sulfate	mg/l	500	S	ND	ND	ND	ND	13	13.1	31	29.7	280	277	280	260
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			3.17	3.87	3.16	3.67	1.54	1.8	0.57	0.71	1.16	0.98	1.14	1.29
Carbon Dioxide	mg/l			0.364	ND	0.35	ND	0.342	ND	1.27	ND	5.14	9.02	6.6	5.53
General Physical															
Apparent Color	ACU	15	S	**80**	**80**	**80**	**80**	**30**	**35**	10	10	3	3	3	5
Lab pH	Units			9	9	9	9	8.9	8.8	8.4	8.4	7.8	7.5	7.9	7.9
Odor	TON	3	S	**3**	1	**3**	1	**4**	2	2	2	**3**	2	2	2
pH of CaCO3 saturation(25C)	Units			8.82	8.83	8.8	8.8	8.6	8.59	7.94	7.97	7.19	7.2	6.77	6.81
pH of CaCO3 saturation(60C)	Units			8.38	8.39	8.36	8.36	8.16	8.15	7.5	7.53	6.75	6.76	6.33	6.37
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	289	250	280	247	247	218	306	271	1530	1440	1200	1140
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	32	31	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	1.6	1.8	10	6.8
Barium, Total, ICAP/MS	ug/l	1000	P	ND	2	2	2.1	ND	ND	7	7	88	87	280	230
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	2	ND	2	ND	2.3	ND	3.6	ND
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	6.8	ND	11	6.4
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 11 of 22

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2	Long Beach #2
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				03/17/05	09/28/05	02/17/05	08/23/05	03/17/05	09/28/05	03/17/05	09/28/05	03/17/05	09/28/05	03/17/05	09/28/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	420	410	280	280	250	250	290	290	**1000**	970	**1210**	**1190**
Cation Sum	meq/l			7.06	6.59	4.51	4.46	3.98	3.98	4.86	4.82	16.1	15.5	19.6	19.1
Anion Sum	meq/l			6.67	6.68	4.35	4.38	3.72	3.8	4.52	4.64	15.2	15.4	18.6	18.8
Iron, Total, ICAP	mg/l	0.3	S	0.13	0.1	0.025	0.022	ND	ND	0.021	0.027	0.16	0.14	0.19	0.17
Manganese, Total, ICAP/MS	ug/l	50	S	15	17	21	18	9.8	8.6	19	30	**170**	**150**	**320**	**300**
Turbidity	NTU	5	S	1.4	1.6	0.6	0.45	0.2	0.25	0.9	1.2	0.75	1.5	1.8	2.3
Alkalinity	mg/l			305	301	187	191	134	135	142	141	311	312	291	290
Boron	mg/l			0.5	0.49	0.18	0.17	0.12	0.14	0.08	0.1	0.25	0.28	0.32	0.36
Bicarbonate as HCO3,calculated	mg/l			370	365	227	232	162	161	172	171	379	380	354	353
Calcium, Total, ICAP	mg/l			6.9	6.5	14	14	14	14	39	39	180	170	210	210
Carbonate as CO3, Calculated	mg/l			6.04	4.73	2.34	2.39	3.33	8.31	2.23	2.22	1.23	ND	1.83	ND
Hardness (Total, as CaCO3)	mg/l			23.4	22.4	42.4	42.4	40.7	40.7	116	116	557	527	664	664
Chloride	mg/l	500	S	19.1	22.2	20.4	19	20	22.4	27.1	30.7	98.2	103	164	169
Fluoride	mg/l	2	P	0.64	0.66	0.42	0.39	0.54	0.55	0.36	0.33	0.2	0.17	0.33	0.32
Hydroxide as OH, Calculated	mg/l			0.04	ND	0.03	ND	0.05	ND	0.03	ND	0.009	ND	0.01	ND
Langelier Index - 25 degree	None			0.36	0.23	0.26	0.27	0.41	0.81	0.68	0.68	1.1	1.2	1.3	1.1
Magnesium, Total, ICAP	mg/l			1.5	1.5	1.8	1.8	1.4	1.4	4.4	4.5	26	25	34	34
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.7	2.3	2.2	1.9	1.5	1.3	2.7	2.7	5.3	4.9	6.6	6.2
Sodium, Total, ICAP	mg/l			150	140	83	82	72	72	57	56	110	110	140	130
Sulfate	mg/l	500	S	ND	ND	0.635	ND	21.6	21.3	43.1	45.1	297	300	389	395
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	0.065	0.054	0.084	0.054	0.117	0.089
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			11.6	11.6	3.43	3.93	1.61	1.59	1.39	1.28	1.57	1.51	1.62	1.63
Carbon Dioxide	mg/l			2.95	3	2.86	2.4	1.02	ND	1.72	ND	15.1	9.88	8.91	11.6
General Physical															
Apparent Color	ACU	15	S	**350**	**300**	**30**	**40**	**25**	**25**	3	5	3	5	5	5
Lab pH	Units			8.4	8.3	8.2	8.2	8.5	8.9	8.3	8.3	7.7	7.8	7.9	7.7
Odor	TON	3	S	**8**	**3**	**17**	**4**	**3**	2	**8**	2	**3**	1	**4**	**3**
pH of CaCO3 saturation(25C)	Units			8.04	8.07	7.94	7.93	8.09	8.09	7.62	7.62	6.61	6.63	6.57	6.58
pH of CaCO3 saturation(60C)	Units			7.59	7.62	7.5	7.49	7.65	7.65	7.17	7.18	6.17	6.19	6.13	6.13
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	565	520	451	440	337	283	429	342	1280	1140	1510	1420
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	1.1	ND	ND	1.6	1.6	6.1	5.3	8.6	6.9
Barium, Total, ICAP/MS	ug/l	1000	P	7.2	8	9.8	9.4	6	5.5	68	22	88	79	92	85
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	1	4.9	ND	1.9	2.2	4.8	2.5	4.5	16	4.5	15
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	3	2.4	ND	ND	ND	ND	3.3	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	0.96	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	13	6.1	17	7.6
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	16	ND	ND	ND	ND	ND	8.3	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 12 of 22

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6	Long Beach #6
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				03/16/05	09/14/05	03/16/05	09/14/05	03/16/05	09/14/05	03/16/05	09/14/05	03/16/05	09/14/05	03/16/05	09/14/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	620	670	430	600	220	210	240	230	180	190	250	240
Cation Sum	meq/l			10.8	12	7.73	10.2	3.86	12	4.2	3.84	3.2	3.15	4.17	4.11
Anion Sum	meq/l			10.1	10.8	6.86	9.56	3.52	3.53	3.81	3.65	3.07	3	3.97	3.93
Iron, Total, ICAP	mg/l	0.3	S	0.18	0.094	0.081	0.1	0.033	0.092	0.055	ND	ND	ND	0.14	0.13
Manganese, Total, ICAP/MS	ug/l	50	S	20	18	16	28	5.5	5.5	27	25	12	9.8	**110**	**100**
Turbidity	NTU	5	S	4.8	3.3	3.1	4.4	0.6	0.85	1.3	1.1	0.4	0.2	0.3	0.4
Alkalinity	mg/l			484	512	317	451	154	154	165	156	117	114	126	126
Boron	mg/l			0.92	1.1	0.62	0.92	0.23	1.1	0.22	0.24	0.068	0.097	ND	0.057
Bicarbonate as HCO3,calculated	mg/l			585	620	383	546	184	184	199	188	141	138	153	153
Calcium, Total, ICAP	mg/l			12	10	4.6	9.6	4.6	10	5.7	5.6	13	13	38	38
Carbonate as CO3, Calculated	mg/l			15.1	12.7	9.91	11.2	9.5	9.5	6.48	4.86	3.65	3.57	0.994	ND
Hardness (Total, as CaCO3)	mg/l			39	32.8	14.9	30.6	12.8	32.4	16.5	15.9	36.6	36.4	116	115
Chloride	mg/l	500	S	15.2	18.1	17	17.9	14.4	15	16	15.8	16	15	40	39.1
Fluoride	mg/l	2	P	0.77	0.66	0.75	0.59	0.65	0.57	0.64	0.59	0.52	0.47	0.23	0.17
Hydroxide as OH, Calculated	mg/l			0.07	ND	0.07	ND	0.1	ND	0.09	ND	0.07	ND	0.02	ND
Langelier Index - 25 degree	None			1	0.85	0.4	0.77	0.38	0.72	0.31	0.18	0.42	0.41	0.32	0.32
Magnesium, Total, ICAP	mg/l			2.2	1.9	0.83	1.6	0.31	1.8	0.55	0.47	1	0.95	5.2	5
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.2	ND	1.5	ND	ND	ND	ND	ND	1.2	1.1	2.5	2.3
Sodium, Total, ICAP	mg/l			230	260	170	220	83	260	89	81	56	55	41	40
Sulfate	mg/l	500	S	ND	ND	ND	ND	ND	ND	1.3	2.62	12	12.9	15	14.3
Surfactants	mg/l	0.5	S	0.057	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			19.3	18.3	14	17.5	6.4	6.4	8.4	5.97	1.56	1.74	0.78	0.7
Carbon Dioxide	mg/l			2.94	3.22	1.92	2.83	0.463	ND	0.794	ND	0.708	ND	3.06	2.51
General Physical															
Apparent Color	ACU	15	S	**250**	**350**	**200**	**250**	**125**	**120**	**150**	**120**	**30**	**30**	3	3
Lab pH	Units			8.6	8.5	8.6	8.5	8.9	8.9	8.7	8.6	8.6	8.6	8	8
Odor	TON	3	S	**8**	**4**	**4**	**8**	**4**	**4**	**3**	**3**	**3**	**4**	**4**	**4**
pH of CaCO3 saturation(25C)	Units			7.6	7.65	8.2	7.73	8.52	8.18	8.39	8.42	8.18	8.19	7.68	7.68
pH of CaCO3 saturation(60C)	Units			7.15	7.21	7.75	7.28	8.08	7.74	7.95	7.98	7.74	7.75	7.24	7.24
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	806	932	670	837	296	322	348	332	279	283	370	377
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	3.7	3.5	ND	1.2	ND	ND	ND	ND	ND	ND	4.4	3.6
Barium, Total, ICAP/MS	ug/l	1000	P	10	11	8	16	4	4.7	8	9.5	5.6	5.1	13	12
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.2	1.6	ND	1.5	1.5	1.6	ND	1.6	1.9	1	1.8	1.1
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	8.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			1.7	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	7.7	ND	17	ND	9.1	ND	14	5.1	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 13 of 22

Water Quality Constituents	Units	MCL	MCL Type	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1	Los Angeles #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5
				05/04/05	09/30/05	05/04/05	09/30/05	09/30/05	05/04/05	09/30/05	05/04/05	09/30/05
General Mineral												
Total Dissolved Solid (TDS)	mg/l	1000	S	360	360	370	360	360	530	560	650	630
Cation Sum	meq/l			5.66	5.66	6.06	6.11	6.24	8.72	9.45	10.5	10.5
Anion Sum	meq/l			5.8	5.45	6.3	5.78	5.85	8.7	9	10.8	10.5
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	0.19	0.18	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	42	45	**54**	**65**	18	ND	ND	ND	ND
Turbidity	NTU	5	S	0.2	0.25	1.2	1.2	0.6	0.4	0.55	0.8	0.6
Alkalinity	mg/l			184	172	197	176	178	216	206	236	222
Boron	mg/l			0.13	0.13	0.12	0.13	0.14	0.15	0.17	0.17	0.18
Bicarbonate as HCO3,calculated	mg/l			223	209	240	214	216	263	251	287	270
Calcium, Total, ICAP	mg/l			54	54	59	60	62	90	98	110	110
Carbonate as CO3, Calculated	mg/l			2.89	2.15	1.96	ND	ND	1.08	ND	1.87	ND
Hardness (Total, as CaCO3)	mg/l			184	184	209	212	221	319	352	394	394
Chloride	mg/l	500	S	21.7	19.9	21.6	20	20.5	53	61.3	82.2	81.1
Fluoride	mg/l	2	P	0.31	0.32	0.46	0.46	0.41	0.48	0.45	0.44	0.44
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.02	ND	ND	0.01	ND	0.02	ND
Langelier Index - 25 degree	None			0.94	0.81	0.81	0.66	0.78	0.73	0.95	1	1
Magnesium, Total, ICAP	mg/l			12	12	15	15	16	23	26	29	29
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	5.38	6.8	**12.2**	**12.2**
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			4.1	3.9	3.6	3.6	3.4	4.2	4.2	4.6	4.3
Sodium, Total, ICAP	mg/l			43	43	41	41	40	51	53	57	57
Sulfate	mg/l	500	S	71.7	68.7	82.7	80.1	81.3	119	127	137	136
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	0.065	ND	0.052	0.081
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	5.38	6.8	12.2	12.2
Total Organic Carbon	mg/l			0.45	0.49	ND	ND	ND	0.47	0.49	0.49	0.6
Carbon Dioxide	mg/l			2.24	2.16	3.81	3.51	2.81	8.34	4.12	5.74	4.43
General Physical												
Apparent Color	ACU	15	S	5	5	5	3	3	5	3	**15**	10
Lab pH	Units			8.3	8.2	8.1	8	8.1	7.8	8	8	8
Odor	TON	3	S	2	1	1	2	1	1	2	1	1
pH of CaCO3 saturation(25C)	Units			7.36	7.39	7.29	7.34	7.32	7.07	7.05	6.95	6.97
pH of CaCO3 saturation(60C)	Units			6.92	6.95	6.85	6.89	6.87	6.63	6.61	6.5	6.53
Radon	pCi/l											
Specific Conductance	umho/cm	1600	S	522	435	550	456	476	787	684	976	798
Metal												
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	1.9	1.2	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	P	28	27	46	45	61	110	120	150	150
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	**64**	**73**	**360**	**370**
Hexavalent Chromium (Cr VI)	mg/l											
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	0.5	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds												
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	**15**	**22**	**27**	**32**
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	0.7	1	1.4	1.5
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	**0.5**	**0.6**	**0.8**
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l											

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 14 of 22

Water Quality Constituents	Units	MCL	MCL Type	Montebello #1 Zone 1 03/21/05	Montebello #1 Zone 1 09/26/05	Montebello #1 Zone 2 03/21/05	Montebello #1 Zone 2 09/26/05	Montebello #1 Zone 3 03/21/05	Montebello #1 Zone 3 09/26/05	Montebello #1 Zone 4 03/21/05	Montebello #1 Zone 4 09/26/05	Montebello #1 Zone 5 03/21/05	Montebello #1 Zone 5 09/26/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	1000	S	**2140**	**2170**	890	890	560	600	530	550	490	510
Cation Sum	meq/l			34.8	35.2	15.2	14.6	9.1	9.98	8.78	9.3	8.14	8.51
Anion Sum	meq/l			36.2	35.5	14.5	14.6	8.56	9.65	8.33	8.7	7.67	8.12
Iron, Total, ICAP	mg/l	0.3	S	0.14	0.14	0.21	0.19	0.14	0.11	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	ND	9.3	34	35	**160**	**140**	**73**	**68**	ND	ND
Turbidity	NTU	5	S	2.2	0.8	1	0.8	**11**	2.1	0.2	0.65	0.15	0.4
Alkalinity	mg/l			863	859	557	558	183	208	175	186	168	172
Boron	mg/l			5.8	6	2.1	2.1	0.19	0.43	0.1	0.16	0.21	0.23
Bicarbonate as HCO3,calculated	mg/l			1050	1040	676	676	223	253	213	226	205	209
Calcium, Total, ICAP	mg/l			13	13	19	17	98	92	110	110	80	84
Carbonate as CO3, Calculated	mg/l			13.6	21.4	8.77	13.9	1.45	ND	1.74	ND	0.841	ND
Hardness (Total, as CaCO3)	mg/l			55.9	56.3	79.2	72.9	315	296	345	349	266	280
Chloride	mg/l	500	S	**669**	**650**	117	123	67.7	90.7	66.1	68.3	62.8	73.5
Fluoride	mg/l	2	P	0.5	0.51	0.36	0.35	0.22	0.2	0.22	0.22	0.44	0.41
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.03	ND	0.02	ND	0.02	ND	0.01	ND
Langelier Index - 25 degree	None			0.99	1.2	0.96	1.1	0.89	0.92	1	0.85	0.57	0.7
Magnesium, Total, ICAP	mg/l			5.7	5.8	7.7	7.4	17	16	17	18	16	17
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	3.42	3.24
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			9	7.7	6.3	5.3	4.1	4.2	3.8	3.9	3.4	3.4
Sodium, Total, ICAP	mg/l			770	780	310	300	62	91	41	51	63	65
Sulfate	mg/l	500	S	ND	ND	ND	ND	143	140	142	146	109	113
Surfactants	mg/l	0.5	S	0.094	0.086	0.067	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	3.42	3.24
Total Organic Carbon	mg/l			37.3	6.77	22.5	5.09	0.9	2.23	0.47	1.13	0.41	0.51
Carbon Dioxide	mg/l			10.5	5.39	6.78	3.51	4.46	4.15	3.38	4.67	6.5	4.32
General Physical													
Apparent Color	ACU	15	S	**500**	**120**	**250**	**120**	10	**20**	3	5	ND	ND
Lab pH	Units			8.3	8.5	8.3	8.5	8	8	8.1	7.9	7.8	7.9
Odor	TON	3	S	**8**	**3**	**4**	**3**	**3**	**3**	**3**	2	2	2
pH of CaCO3 saturation(25C)	Units			7.31	7.31	7.34	7.38	7.11	7.08	7.08	7.05	7.23	7.2
pH of CaCO3 saturation(60C)	Units			6.86	6.87	6.89	6.94	6.66	6.63	6.63	6.6	6.79	6.76
Radon	pCi/l												
Specific Conductance	umho/cm	1600	S	**3460**	**3530**	1370	1430	832	950	806	852	762	825
Metal													
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	4.1	ND	ND	ND	ND	ND	ND	1.7	1.5
Barium, Total, ICAP/MS	ug/l	1000	P	36	39	25	25	39	39	85	82	57	59
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	9.5	2.3	ND	1.2	3.1	3.9	2.3	3	2.2	2.8
Hexavalent Chromium (Cr VI)	mg/l												
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	6.9	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l												

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 15 of 22

Water Quality Constituents	Units	MCL	MCL Type	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1	Norwalk #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5
				04/20/05	09/26/05	04/20/05	09/26/05	04/20/05	9/26/2005	12/20/04	9/26/2005	12/20/04	09/26/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	1000	S	470	460	300	300	230	220	210	200	430	410
Cation Sum	meq/l			8.13	8.13	5.35	5.36	3.85	3.75	3.59	3.47	7.64	7.22
Anion Sum	meq/l			7.44	7.26	5.1	5.07	3.75	3.62	3.29	3.25	7.27	7.05
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	0.023	ND	ND	0.033	0.084	0.11
Manganese, Total, ICAP/MS	ug/l	50	S	3.7	ND	6.1	5.7	25	20	**56**	**75**	**150**	**140**
Turbidity	NTU	5	S	0.3	0.4	0.55	0.7	1.1	1.6	**18**	**9.8**	**145**	**53**
Alkalinity	mg/l			278	272	172	171	117	110	129	126	198	193
Boron	mg/l			0.39	0.39	0.19	0.21	0.064	ND	0.06	0.053	0.081	0.079
Bicarbonate as HCO3,calculated	mg/l			337	330	208	206	142	133	157	153	241	235
Calcium, Total, ICAP	mg/l			12	12	8.6	8.8	21	22	24	25	68	64
Carbonate as CO3, Calculated	mg/l			5.5	5.39	5.38	6.71	1.84	ND	1.02	ND	0.785	ND
Hardness (Total, as CaCO3)	mg/l			55.1	55.5	26.4	26.9	61.5	63.2	80.5	85.5	236	222
Chloride	mg/l	500	S	65.9	61.2	57.7	57.3	38.4	39.7	17.3	17.9	117	110
Fluoride	mg/l	2	P	0.45	0.49	0.58	0.62	0.29	0.32	0.3	0.32	0.26	0.29
Hydroxide as OH, Calculated	mg/l			0.04	ND	0.07	ND	0.03	ND	0.02	ND	0.009	ND
Langelier Index - 25 degree	None			0.56	0.55	0.41	0.51	0.33	0.32	0.13	0.24	0.47	0.63
Magnesium, Total, ICAP	mg/l			6.1	6.2	1.2	1.2	2.2	2	5	5.6	16	15
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.6	2.4	1.7	1.5	2.1	2	2.5	2.3	3.9	3.4
Sodium, Total, ICAP	mg/l			160	160	110	110	59	56	44	39	65	62
Sulfate	mg/l	500	S	ND	3.31	ND	ND	15.1	13.5	10	9.89	ND	3.4
Surfactants	mg/l	0.5	S	0.054	0.054	ND	ND	ND	ND	ND	ND	ND	0.16
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			2.33	2.75	2.58	2.95	0.41	0.48	0.7	0.36	1.9	1.65
Carbon Dioxide	mg/l			2.68	2.15	1.04	ND	1.42	ND	3.14	ND	9.62	4.85
General Physical													
Apparent Color	ACU	15	S	**25**	**25**	**35**	**35**	3	ND	ND	ND	3	5
Lab pH	Units			8.4	8.4	8.6	8.7	8.3	8.3	8	8.1	7.7	7.9
Odor	TON	3	S	**17**	**40**	**4**	**4**	**3**	2	**40**	2	**40**	**4**
pH of CaCO3 saturation(25C)	Units			7.84	7.85	8.19	8.19	7.97	7.98	7.869	7.86	7.23	7.27
pH of CaCO3 saturation(60C)	Units			7.39	7.4	7.75	7.74	7.53	7.53	7.4	7.42	6.8	6.82
Radon	pCi/l			310	310	76	80	68	93	55	60	93	83
Specific Conductance	umho/cm	1600	S	762	789	502	519	380	379	333	331	732	731
Metal													
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	26
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	14	8.8	1.2	11	20	14
Barium, Total, ICAP/MS	ug/l	1000	P	13	13	6.2	5.8	60	63	70	65	280	270
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	5.5	ND	3.9	ND	2.4	3.1	2.6	5.2	4.4
Hexavalent Chromium (Cr VI)	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	6.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	6.2	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 16 of 22

Water Quality Constituents	Units	MCL	MCL Type	Pico #1	Pico #1	Pico #1	Pico #1	Pico #1	Pico #1
				Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4
				03/09/05	09/30/05	03/09/05	09/30/05	03/09/05	09/30/05
General Mineral									
Total Dissolved Solid (TDS)	mg/l	1000	S	340	320	570	510	620	620
Cation Sum	meq/l			5.7	6.08	9.36	8.41	10.2	9.06
Anion Sum	meq/l			5.4	5.77	9.12	8.26	10	9.89
Iron, Total, ICAP	mg/l	0.3	S	0.26	0.28	**0.39**	0.29	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	33	31	16	18	2	2
Turbidity	NTU	5	S	1.2	1.9	1.4	0.7	0.15	0.25
Alkalinity	mg/l			161	167	191	153	184	189
Boron	mg/l			0.064	0.054	0.11	0.25	0.18	0.18
Bicarbonate as HCO3,calculated	mg/l			196	203	233	187	224	230
Calcium, Total, ICAP	mg/l			71	77	120	76	110	99
Carbonate as CO3, Calculated	mg/l			1.01	ND	0.603	ND	0.366	ND
Hardness (Total, as CaCO3)	mg/l			231	250	382	256	361	325
Chloride	mg/l	500	S	22	24.8	69	75.3	96	92.8
Fluoride	mg/l	2	P	0.33	0.31	0.36	0.27	0.31	0.3
Hydroxide as OH, Calculated	mg/l			0.01	ND	0.007	ND	0.004	ND
Langelier Index - 25 degree	None			0.6	0.75	0.6	0.21	0.35	0.61
Magnesium, Total, ICAP	mg/l			13	14	20	16	21	19
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	0.89	1.08
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.1	3.1	4.3	4.5	5.2	4.4
Sodium, Total, ICAP	mg/l			23	23	37	73	65	56
Sulfate	mg/l	500	S	74	82.1	160	147	170	163
Surfactants	mg/l	0.5	S	ND	ND	ND	0.052	0.055	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	0.89	1.08
Total Organic Carbon	mg/l			ND	0.31	0.4	0.72	0.52	0.69
Carbon Dioxide	mg/l			4.93	3.33	11.7	9.7	17.8	7.53
General Physical									
Apparent Color	ACU	15	S	3	5	3	10	ND	ND
Lab pH	Units			7.9	8	7.6	7.5	7.4	7.7
Odor	TON	3	S	2	2	2	2	1	1
pH of CaCO3 saturation(25C)	Units			7.3	7.25	7	7.29	7.05	7.09
pH of CaCO3 saturation(60C)	Units			6.86	6.81	6.55	6.85	6.61	6.64
Radon	pCi/l								
Specific Conductance	umho/cm	1600	S	444	453	741	661	834	793
Metal									
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	2.6	2.8
Barium, Total, ICAP/MS	ug/l	1000	P	84	90	57	46	64	63
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.5	ND	3.3	ND	3.4	ND
Hexavalent Chromium (Cr VI)	mg/l								
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	7.5	ND	7.6	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds									
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	0.5	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND
Perchlorate	ug/l								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2	Pico #2
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				05/18/05	09/20/05	05/18/05	09/20/05	05/18/05	09/20/05	05/18/05	09/20/05	05/18/05	09/20/05	05/18/05	09/20/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	510	510	590	580	520	520	520	500	490	480	300	580
Cation Sum	meq/l			8.76	8.31	10.5	9.73	8.67	8.58	8.52	8.46	7.96	8.05	4.58	9.06
Anion Sum	meq/l			8.02	8.02	9.29	9.18	8.33	8.24	8.35	8.06	7.91	7.74	4.5	8.9
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**150**	8	11	ND	ND	2.8	14	16	29	25	**450**	**1300**
Turbidity	NTU	5	S	0.5	0.75	0.85	1.2	2.3	1.7	1.2	0.65	0.4	0.55	0.75	0.3
Alkalinity	mg/l			196	192	217	212	197	188	161	147	158	143	116	101
Boron	mg/l			0.056	0.089	0.12	0.14	0.14	0.13	0.23	0.25	0.25	0.27	0.11	0.19
Bicarbonate as HCO3,calculated	mg/l			238	234	264	258	240	229	196	179	192	174	141	123
Calcium, Total, ICAP	mg/l			110	100	130	120	100	100	73	71	62	62	28	79
Carbonate as CO3, Calculated	mg/l			1.95	ND	1.72	ND	1.56	ND	1.01	ND	0.991	ND	0.578	ND
Hardness (Total, as CaCO3)	mg/l			369	336	436	403	336	336	248	243	225	225	106	296
Chloride	mg/l	500	S	41.7	44.6	66.1	66.4	57.8	59.3	90.8	89.7	89.3	93.6	29.8	112
Fluoride	mg/l	2	P	0.26	0.35	0.28	0.35	0.32	0.36	0.38	0.43	0.38	0.43	0.31	0.21
Hydroxide as OH, Calculated	mg/l			0.02	ND	0.02	ND	0.02	ND	0.01	ND	0.01	ND	0.01	ND
Langelier Index - 25 degree	None			1.1	0.92	1.1	0.85	0.94	0.81	0.61	0.46	0.53	0.39	-0.039	-0.09
Magnesium, Total, ICAP	mg/l			23	21	27	25	21	21	16	16	17	17	8.7	24
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	2.88	2.76	3.02	3.03	3.14	3.12	3.01	3.31	2.14	2.44	1.56	0.875
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			5.8	5.9	4.5	4	4.4	4.3	4.7	4.4	4.5	4.5	4.4	6.9
Sodium, Total, ICAP	mg/l			28	33	39	36	42	40	79	80	77	79	54	68
Sulfate	mg/l	500	S	130	130	137	136	121	123	112	112	98.8	98.1	58	175
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	0.064	0.05	0.062	0.071	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			2.88	2.76	3.02	3.03	3.14	3.12	3.01	3.31	2.14	2.44	1.56	0.875
Total Organic Carbon	mg/l			0.49	0.35	0.55	0.36	0.49	0.34	0.97	0.78	1.14	1.1	1.32	1.55
Carbon Dioxide	mg/l			3.78	3.84	5.28	6.71	4.8	4.73	4.93	4.65	4.83	4.52	4.47	10.1
General Physical															
Apparent Color	ACU	15	S	ND	ND	ND	3	ND	ND	ND	3	ND	3	3	5
Lab pH	Units			8.1	8	8	7.8	8	7.9	7.9	7.8	7.9	7.8	7.8	7.3
Odor	TON	3	S	2	1	2	1	2	1	2	1	1	1	2	1
pH of CaCO3 saturation(25C)	Units			7.03	7.08	6.91	6.95	7.06	7.09	7.29	7.34	7.37	7.41	7.85	7.46
pH of CaCO3 saturation(60C)	Units			6.58	6.63	6.46	6.51	6.62	6.64	6.84	6.9	6.92	6.97	7.4	7.01
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	781	797	912	921	789	833	819	839	779	800	454	758
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	2.2	2.1	2	1.9	1.6	1.6	2.7	2.4	1.1	ND	23	11
Barium, Total, ICAP/MS	ug/l	1000	P	160	160	130	140	130	160	69	72	86	95	68	220
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.2	2.2	1.9	1.5	2	1.9	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	2.2	2.5	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	5.5	ND	ND	ND	5.6	5.9	7.3	ND	6.6
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	0.6	0.8	2.8	2.9	**7.6**	**8.3**	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 18 of 22

Water Quality Constituents	Units	MCL	MCL Type	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1	Rio Hondo #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5	Zone 6	Zone 6
				04/19/05	09/20/05	04/19/05	09/20/05	04/19/05	09/20/05	04/19/05	09/20/05	04/19/05	09/20/05	04/19/05	09/20/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	1000	S	270	260	480	480	450	470	450	470	440	370	210	220
Cation Sum	meq/l			4.3	4.41	7.75	7.75	7.48	7.57	7.36	7.63	6.85	6.14	3.45	3.48
Anion Sum	meq/l			4.17	4.15	7.57	7.4	7.28	7.16	7.31	7.3	6.78	5.82	3.33	3.24
Iron, Total, ICAP	mg/l	0.3	S	ND	ND	0.053	0.071	ND	ND	ND	ND	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	38	36	42	40	ND	ND	ND	ND	ND	ND	ND	ND
Turbidity	NTU	5	S	**8.5**	**11**	0.65	0.6	0.2	0.4	1.4	0.45	3.7	2.5	3.9	**11**
Alkalinity	mg/l			136	136	162	160	164	164	133	130	120	116	76.7	89.3
Boron	mg/l			0.054	0.078	ND	0.06	0.14	0.16	0.17	0.19	0.14	0.16	0.11	0.1
Bicarbonate as HCO3,calculated	mg/l			165	165	197	195	199	200	162	158	146	141	93.3	109
Calcium, Total, ICAP	mg/l			39	39	100	100	82	83	69	71	65	56	25	25
Carbonate as CO3, Calculated	mg/l			2.14	ND	1.61	ND	1.63	ND	1.05	ND	0.949	ND	0.482	ND
Hardness (Total, as CaCO3)	mg/l			130	132	324	324	267	269	226	235	220	189	88.4	88
Chloride	mg/l	500	S	16.6	16.4	51.2	49.3	55.2	53.8	76	78.7	75.9	58	26.2	19.5
Fluoride	mg/l	2	P	0.26	0.28	0.22	0.35	0.32	0.42	0.4	0.42	0.33	0.37	0.39	0.43
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND	0.01	ND
Langelier Index - 25 degree	None			0.66	0.46	0.95	0.65	0.87	0.68	0.6	0.1	0.53	0.35	-0.09	-0.3
Magnesium, Total, ICAP	mg/l			8	8.3	18	18	15	15	13	14	14	12	6.3	6.2
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	2.24	2.14	2.94	2.85	2.8	2.4	1.62	1.09
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.3	3.3	3.8	3.6	3.9	3.8	4.1	4	4	3.6	2.8	2.7
Sodium, Total, ICAP	mg/l			37	39	27	27	47	48	63	65	54	52	37	38
Sulfate	mg/l	500	S	46.7	45.6	138	134	109	105	109	108	96.9	80.4	44	38.7
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	2.24	2.14	2.94	2.85	2.8	2.4	1.62	1.09
Total Organic Carbon	mg/l			0.7	0.49	ND	ND	0.37	0.41	0.64	0.65	0.42	0.41	0.42	0.56
Carbon Dioxide	mg/l			1.65	2.15	3.13	5.07	3.16	4.13	3.24	8.19	2.92	2.91	2.35	3.57
General Physical															
Apparent Color	ACU	15	S	3	5	ND	3	ND	ND	ND	ND	ND	ND	3	5
Lab pH	Units			8.3	8.1	8.1	7.8	8.1	7.9	8	7.5	8	7.9	7.9	7.7
Odor	TON	3	S	**3**	1	2	1	2	1	2	1	2	1	2	1
pH of CaCO3 saturation(25C)	Units			7.64	7.64	7.15	7.15	7.23	7.22	7.4	7.4	7.47	7.55	8.08	8.01
pH of CaCO3 saturation(60C)	Units			7.19	7.19	6.71	6.71	6.79	6.78	6.95	6.95	7.02	7.1	7.63	7.57
Radon	pCi/l														
Specific Conductance	umho/cm	1600	S	395	365	701	659	677	651	722	670	662	542	336	310
Metal															
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	11	3.9	1.1	1	2.3	1.9	2.8	2.3	1.6	1.4	1.3	1.5
Barium, Total, ICAP/MS	ug/l	1000	P	27	28	56	59	120	130	61	66	60	54	38	42
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	mg/l														
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l														

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	South Gate #1 Zone 1 05/18/05	South Gate #1 Zone 1 09/29/05	South Gate #1 Zone 2 05/18/05	South Gate #1 Zone 2 09/29/05	South Gate #1 Zone 3 05/18/05	South Gate #1 Zone 3 09/29/05	South Gate #1 Zone 4 05/18/05	South Gate #1 Zone 4 09/29/05	South Gate #1 Zone 5 05/18/05	South Gate #1 Zone 5 09/29/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	1000	S	320	300	430	410	440	410	460	430	560	550
Cation Sum	meq/l			5.29	5.4	6.9	6.84	6.98	6.89	7.53	7.29	9.66	9.28
Anion Sum	meq/l			5.26	4.94	6.76	6.4	6.84	6.47	7.29	6.87	9.53	9.2
Iron, Total, ICAP	mg/l	0.3	S	0.049	0.048	ND	ND	ND	ND	ND	ND	0.078	0.07
Manganese, Total, ICAP/MS	ug/l	50	S	**62**	**61**	ND	ND	ND	ND	ND	ND	**130**	**130**
Turbidity	NTU	5	S	0.45	0.3	0.35	0.3	0.2	0.25	0.2	0.55	0.35	0.45
Alkalinity	mg/l			177	162	154	140	169	154	176	159	204	187
Boron	mg/l			0.097	0.12	0.13	0.15	0.1	0.13	0.16	0.17	0.13	0.14
Bicarbonate as HCO3,calculated	mg/l			215	197	187	170	205	187	214	193	248	228
Calcium, Total, ICAP	mg/l			51	52	74	73	77	76	79	77	100	96
Carbonate as CO3, Calculated	mg/l			2.79	2.03	1.53	ND	1.68	ND	1.75	ND	2.03	ND
Hardness (Total, as CaCO3)	mg/l			161	164	242	240	258	256	263	254	357	343
Chloride	mg/l	500	S	19.2	19.5	48	47.4	41.3	40.8	48.4	48.5	114	116
Fluoride	mg/l	2	P	0.29	0.31	0.3	0.33	0.37	0.4	0.37	0.39	0.41	0.43
Hydroxide as OH, Calculated	mg/l			0.03	ND	0.02	ND	0.02	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None			0.9	0.77	0.8	0.75	0.85	0.71	0.88	0.83	1	0.9
Magnesium, Total, ICAP	mg/l			8.2	8.4	14	14	16	16	16	15	26	25
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	2.37	2.28	2.33	2.24	1.83	1.94	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			2.5	2.4	3.4	3.2	3	2.9	3.3	3	3.2	2.9
Sodium, Total, ICAP	mg/l			46	47	45	45	40	39	50	49	56	54
Sulfate	mg/l	500	S	55.7	54.3	103	99.8	101	98.6	108	104	106	104
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND	0.05	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	2.37	2.28	2.33	2.24	1.83	1.94	ND	ND
Total Organic Carbon	mg/l			0.4	0.34	0.38	0.34	ND	0.32	0.46	0.42	0.7	0.68
Carbon Dioxide	mg/l			2.16	2.04	2.97	2.21	3.26	3.07	3.4	2.51	3.94	3.74
General Physical													
Apparent Color	ACU	15	S	3	3	ND	3	ND	ND	3	ND	ND	3
Lab pH	Units			8.3	8.2	8.1	8.1	8.1	8	8.1	8.1	8.1	8
Odor	TON	3	S	2	1	1	2	2	2	2	1	2	2
pH of CaCO3 saturation(25C)	Units			7.4	7.43	7.3	7.35	7.25	7.29	7.22	7.27	7.05	7.1
pH of CaCO3 saturation(60C)	Units			6.96	6.99	6.86	6.91	6.8	6.85	6.77	6.83	6.61	6.66
Radon	pCi/l												
Specific Conductance	umho/cm	1600	S	481	421	640	548	641	554	677	590	894	802
Metal													
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	2.1	1.9	2.6	2.6	2.9	3	2	1.9	2.4	2.2
Barium, Total, ICAP/MS	ug/l	1000	P	120	120	87	90	140	140	67	65	210	210
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.4	ND	ND	ND	2.6	1	2	ND	2.5	ND
Hexavalent Chromium (Cr VI)	mg/l												
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	0.9	0.8	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	0.9	0.8	**7.2**	**5.8**	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l												

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 20 of 22

Water Quality Constituents	Units	MCL	MCL Type	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1	Whittier #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4	Zone 5	Zone 5
				04/07/05	09/28/05	04/07/05	09/28/05	04/07/05	09/28/05	04/07/05	09/28/05	04/07/05	09/28/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	1000	S	**2770**	**2750**	**2640**	**2620**	**1790**	**1780**	710	720	700	710
Cation Sum	meq/l			40.1	40	37	38.7	27.1	27.2	12	11.3	11.4	11.1
Anion Sum	meq/l			41.3	41.3	39.8	37.4	26.9	26.7	11.4	11.1	10.7	10.8
Iron, Total, ICAP	mg/l	0.3	S	**0.56**	**0.56**	**0.4**	**0.43**	0.28	0.28	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**88**	**72**	**120**	**100**	**110**	**98**	19	17	13	10
Turbidity	NTU	5	S	3.7	4.2	2.4	2.6	4.2	2.1	0.15	0.3	0.75	1.6
Alkalinity	mg/l			247	258	286	279	293	288	262	249	237	228
Boron	mg/l			0.77	0.88	0.84	0.97	0.56	0.63	0.17	0.19	0.14	0.16
Bicarbonate as HCO3,calculated	mg/l			301	314	348	340	357	351	319	303	289	278
Calcium, Total, ICAP	mg/l			200	190	180	190	160	160	82	79	83	80
Carbonate as CO3, Calculated	mg/l			1.23	ND	1.8	ND	1.84	ND	1.65	ND	1.19	ND
Hardness (Total, as CaCO3)	mg/l			1030	1010	944	1010	758	766	353	341	368	360
Chloride	mg/l	500	S	277	276	240	241	180	183	73.5	75.7	74.6	81.1
Fluoride	mg/l	2	P	0.32	0.29	0.3	0.3	0.48	0.51	0.19	0.2	0.29	0.33
Hydroxide as OH, Calculated	mg/l			0.01	ND	0.01	ND	0.01	ND	0.01	ND	0.01	ND
Langelier Index - 25 degree	None			1.1	0.93	1.2	1.1	1.2	1.1	0.87	0.73	0.73	0.6
Magnesium, Total, ICAP	mg/l			130	130	120	130	87	89	36	35	39	39
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	4.04	4.07	4.9	4.81
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			12	11	11	10	7.5	6.8	4.4	4.1	3.9	3.4
Sodium, Total, ICAP	mg/l			440	450	410	420	270	270	110	100	91	87
Sulfate	mg/l	500	S	**1370**	**1360**	**1310**	**1200**	**767**	**755**	183	178	168	173
Surfactants	mg/l	0.5	S	ND	ND	0.054	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	4.04	4.07	4.9	4.81
Total Organic Carbon	mg/l			1.69	1.96	2.04	2.41	1.09	1.39	ND	ND	ND	ND
Carbon Dioxide	mg/l			9.54	12.9	8.76	11.1	8.99	9.12	8.03	7.88	9.16	9.1
General Physical													
Apparent Color	ACU	15	S	**15**	**15**	10	**15**	10	10	ND	ND	ND	3
Lab pH	Units			7.8	7.6	7.9	7.7	7.9	7.8	7.9	7.8	7.8	7.7
Odor	TON	3	S	**3**	2	**3**	2	**3**	1	**3**	1	**4**	1
pH of CaCO3 saturation(25C)	Units			6.67	6.67	6.65	6.63	6.69	6.7	7.03	7.07	7.07	7.1
pH of CaCO3 saturation(60C)	Units			6.22	6.22	6.2	6.19	6.24	6.25	6.58	6.62	6.62	6.65
Radon	pCi/l												
Specific Conductance	umho/cm	1600	S	**3450**	**3180**	**3340**	**3010**	**2340**	**2150**	1090	1020	1050	1030
Metal													
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	ND	1	ND	1.1	ND	ND	1.7	1.6	1.1	1.1
Barium, Total, ICAP/MS	ug/l	1000	P	19	18	19	18	22	22	32	31	27	26
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	2.5	6.7	3	6.4	2.8	5.4	2.6	4.4	5	8
Hexavalent Chromium (Cr VI)	mg/l												
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	7	ND	6.8	ND	5.6	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	17	17	22	17
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l												

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 21 of 22

Water Quality Constituents	Units	MCL	MCL Type	Whittier Narrows #1 Zone 1 09/21/05	Whittier Narrows #1 Zone 2 09/21/05	Whittier Narrows #1 Zone 3 09/21/05	Whittier Narrows #1 Zone 4 09/21/05	Whittier Narrows #1 Zone 5 09/21/05	Whittier Narrows #1 Zone 6 09/22/05	Whittier Narrows #1 Zone 7 09/22/05	Whittier Narrows #1 Zone 8 09/22/05	Whittier Narrows #1 Zone 9 09/22/05
General Mineral												
Total Dissolved Solid (TDS)	mg/l	1000	S	**1290**	320	380	360	270	530	530	500	510
Cation Sum	meq/l			19.9	3.51	6.11	6	4.51	9.03	9.03	8.6	9.24
Anion Sum	meq/l			20.1	3.92	5.91	5.59	4.29	8.63	8.58	8.24	8.37
Iron, Total, ICAP	mg/l	0.3	S	**8.4**	0.023	ND	ND	ND	ND	0.023	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**590**	18	ND	ND	ND	16	23	9.6	10
Turbidity	NTU	5	S	**131**	0.35	0.5	0.6	0.45	1.1	1.2	0.5	0.4
Alkalinity	mg/l			64.5	142	135	138	120	161	158	147	159
Boron	mg/l			0.76	0.18	0.07	0.056	0.058	0.22	0.25	0.26	0.29
Bicarbonate as HCO3,calculated	mg/l			78.6	173	164	168	146	196	192	179	194
Calcium, Total, ICAP	mg/l			61	12	83	77	54	96	87	76	74
Carbonate as CO3, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Hardness (Total, as CaCO3)	mg/l			206	32.1	241	232	171	301	275	247	255
Chloride	mg/l	500	S	**665**	30.3	43.7	37.4	21.7	99.8	97.3	96.9	94.1
Fluoride	mg/l	2	P	0.83	0.37	0.24	0.28	0.28	0.28	0.3	0.31	0.36
Hydroxide as OH, Calculated	mg/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Langelier Index - 25 degree	None			-0.36	-0.3	0.89	0.87	0.75	0.93	0.98	0.79	0.51
Magnesium, Total, ICAP	mg/l			13	0.52	8.2	9.6	8.8	15	14	14	17
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	1.43	1.46	1.16	ND	0.72	1.3	2.52
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	0.91	ND	0.62	ND
Potassium, Total, ICAP	mg/l			3.6	1.7	2.6	3.7	3.5	5.1	5.2	5	5.5
Sodium, Total, ICAP	mg/l			360	65	28	29	23	66	78	81	92
Sulfate	mg/l	500	S	ND	9.71	89.2	79.3	56.7	124	125	118	112
Surfactants	mg/l	0.5	S	0.107	0.194	0.184	0.209	0.238	0.127	0.181	0.155	0.169
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	1.43	1.46	1.16	0.91	0.72	1.92	2.52
Total Organic Carbon	mg/l			5.75	1.38	0.38	ND	ND	1.08	1.08	1.3	1.48
Carbon Dioxide	mg/l			5.13	4.5	ND	ND	ND	2.55	ND	2.33	5.04
General Physical												
Apparent Color	ACU	15	S	**50**	3	ND	ND	ND	3	3	3	3
Lab pH	Units			7.4	7.8	8.2	8.2	8.3	8.1	8.2	8.1	7.8
Odor	TON	3	S	**4**	**4**	1	1	1	1	2	2	2
pH of CaCO3 saturation(25C)	Units			7.76	8.13	7.31	7.33	7.55	7.17	7.22	7.31	7.29
pH of CaCO3 saturation(60C)	Units			7.32	7.68	6.87	6.89	7.11	6.73	6.78	6.87	6.84
Radon	pCi/l											
Specific Conductance	umho/cm	1600	S	**2250**	545	600	572	439	771	730	744	747
Metal												
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	11	1.8	1.3	2	2	1.2	1.2	1	ND
Barium, Total, ICAP/MS	ug/l	1000	P	470	27	190	150	110	130	130	77	53
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	ND	ND	2.4	2.7	2.3	ND	ND	ND	ND
Hexavalent Chromium (Cr VI)	mg/l											
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	3.2	4
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	17	19	16	6.9
Selenium, Total, ICAP/MS	ug/l	50	P	27	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	32	ND	ND	ND	ND	7.9	7.3	6	11
Volatile Organic Compounds												
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	0.7	0.8	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	0.7	0.9	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l											

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.2
CENTRAL BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005

Water Quality Constituents	Units	MCL	MCL Type	Willowbrook #1	Willowbrook #1	Willowbrook #1	Willowbrook #1	Willowbrook #1	Willowbrook #1	Willowbrook #1	Willowbrook #1
				Zone 1	Zone 1	Zone 2	Zone 2	Zone 3	Zone 3	Zone 4	Zone 4
				03/15/05	09/22/05	03/15/05	09/22/05	03/15/05	09/22/05	03/15/05	09/22/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	1000	S	340	320	320	320	340	330	350	330
Cation Sum	meq/l			5.64	5.94	5.42	5.51	5.71	5.66	5.7	5.71
Anion Sum	meq/l			5.43	5.67	5.21	5.23	5.45	5.44	5.45	5.46
Iron, Total, ICAP	mg/l	0.3	S	0.039	0.044	ND	ND	0.079	0.075	ND	ND
Manganese, Total, ICAP/MS	ug/l	50	S	**61**	**51**	46	48	34	33	**89**	**82**
Turbidity	NTU	5	S	0.3	0.6	0.2	0.2	0.3	0.3	**5.5**	**5.6**
Alkalinity	mg/l			174	206	162	159	171	170	170	171
Boron	mg/l			0.12	0.18	0.1	0.12	0.12	0.13	0.12	0.14
Bicarbonate as HCO3,calculated	mg/l			212	250	197	193	208	207	207	208
Calcium, Total, ICAP	mg/l			50	46	53	55	57	57	57	57
Carbonate as CO3, Calculated	mg/l			1.38	2.05	2.03	ND	1.07	ND	1.35	ND
Hardness (Total, as CaCO3)	mg/l			166	154	171	179	192	192	183	184
Chloride	mg/l	500	S	18.9	17.7	18.8	19.9	19.2	19.6	22.1	22.2
Fluoride	mg/l	2	P	0.31	0.31	0.31	0.33	0.44	0.45	0.39	0.4
Hydroxide as OH, Calculated	mg/l			0.02	ND	0.03	ND	0.01	ND	0.02	ND
Langelier Index - 25 degree	None			0.58	0.72	0.77	0.78	0.53	0.63	0.63	0.73
Magnesium, Total, ICAP	mg/l			10	9.6	9.5	10	12	12	9.9	10
Mercury	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l			3.8	4.3	3	2.7	3.5	3.4	3	3
Sodium, Total, ICAP	mg/l			51	63	44	43	41	40	45	45
Sulfate	mg/l	500	S	67.2	49.6	68.1	70.5	70.3	70.2	67.5	66.8
Surfactants	mg/l	0.5	S	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l			ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l			0.54	1.5	0.52	0.32	ND	ND	ND	ND
Carbon Dioxide	mg/l			4.24	3.26	2.49	2	5.24	3.39	4.14	2.71
General Physical											
Apparent Color	ACU	15	S	5	10	3	ND	ND	3	3	3
Lab pH	Units			8	8.1	8.2	8.2	7.9	8	8	8.1
Odor	TON	3	S	**16**	1	1	1	**8**	1	1	1
pH of CaCO3 saturation(25C)	Units			7.42	7.38	7.43	7.42	7.37	7.37	7.37	7.37
pH of CaCO3 saturation(60C)	Units			6.98	6.94	6.98	6.97	6.93	6.93	6.93	6.93
Radon	pCi/l										
Specific Conductance	umho/cm	1600	S	537	496	512	455	534	480	543	535
Metal											
Aluminum, Total, ICAP/MS	ug/l	1200	P	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	P	13	10	1.5	ND	3.3	3.1	6.3	4.8
Barium, Total, ICAP/MS	ug/l	1000	P	63	54	57	55	75	72	130	130
Beryllium, Total, ICAP/MS	ug/l	4	P	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	P	4	ND	4.4	ND	3.7	ND	4.1	ND
Hexavalent Chromium (Cr VI)	mg/l										
Cadmium, Total, ICAP/MS	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	P	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	100	S	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	P	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	5000	S	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	P	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	P	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	P	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	P	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l			ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	P	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	P	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	P	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	1000	S	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	P	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	P	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l			ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 1 of 15

Water Quality Constituents	Units	MCL	MCL Type	Carson #1 Zone 1 03/08/05	Carson #1 Zone 1 09/13/05	Carson #1 Zone 2 03/08/05	Carson #1 Zone 2 09/13/05	Carson #1 Zone 3 03/08/05	Carson #1 Zone 3 09/13/05	Carson #1 Zone 4 03/08/05	Carson #1 Zone 4 09/13/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	0	1000	200	190	210	230	300	300	370	370
Cation Sum	meq/l	0	0	3.57	3.41	4.22	4	5.5	5.18	6.63	6.24
Anion Sum	meq/l	0	0	3.42	3.33	3.97	3.78	5.21	4.98	6.31	5.96
Iron, Total, ICAP	mg/l	0	0.3	0.024	ND	0.023	0.021	ND	ND	0.053	0.048
Manganese, Total, ICAP/MS	ug/l	0	50	29	25	19	17	31	28	80	73
Turbidity	NTU	0	5	1.2	0.6	0.15	0.35	0.1	0.2	0.65	1.2
Alkalinity	mg/l	0	0	143	141	168	163	162	159	188	180
Boron	mg/l	0	0	0.092	0.1	0.11	0.11	0.11	0.13	0.12	0.13
Bicarbonate as HCO3,calculated	mg/l	0	0	174	171	204	198	197	193	228	219
Calcium, Total, ICAP	mg/l	0	0	21	20	34	32	47	44	57	52
Carbonate as CO3, Calculated	mg/l	0	0	2.26	2.79	3.33	2.57	2.55	2.5	2.96	2.26
Hardness (Total, as CaCO3)	mg/l	0	0	70.6	67.2	115	108	171	159	200	187
Chloride	mg/l	0	500	19.5	17.7	21.2	18.2	22.9	19.4	36.4	32.4
Fluoride	mg/l	2	0	0.27	0.2	0.23	0.16	0.32	0.22	0.43	0.32
Hydroxide as OH, Calculated	mg/l	0	0	0.03	ND	0.04	ND	0.03	ND	0.03	ND
Langelier Index - 25 degree	None	0	0	0.42	0.49	0.8	0.66	0.82	0.78	0.97	0.81
Magnesium, Total, ICAP	mg/l	0	0	4.4	4.2	7.2	6.8	13	12	14	14
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	2.8	2.7	2.4	2.3	3.1	3	4	3.8
Sodium, Total, ICAP	mg/l	0	0	48	46	43	41	46	44	58	55
Sulfate	mg/l	0	500	ND	ND	ND	ND	62.8	59.8	71.9	68.5
Surfactants	mg/l	0	0.5	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	0.69	0.77	0.42	0.46	ND	0.44	0.34	0.43
Carbon Dioxide	mg/l	0	0	1.74	ND	1.62	ND	1.97	ND	2.29	2.27
General Physical											
Apparent Color	ACU	0	15	5	10	3	5	3	3	3	3
Lab pH	Units	0	0	8.3	8.4	8.4	8.3	8.3	8.3	8.3	8.2
Odor	TON	0	3	1	4	2	3	1	3	1	2
pH of CaCO3 saturation(25C)	Units	0	0	7.88	7.91	7.6	7.64	7.48	7.52	7.33	7.39
pH of CaCO3 saturation(60C)	Units	0	0	7.44	7.47	7.16	7.2	7.04	7.07	6.89	6.94
Radon	pCi/l	0	0								
Specific Conductance	umho/cm	0	1600	333	319	380	354	509	462	616	545
Metal											
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	1.1	1.1	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	18	16	37	35	69	65	220	210
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	3.8	1.3	4.5	1.4	3.9	1.3	4.7	1.7
Hexavalent Chromium (Cr VI)	mg/l	0	0								
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	23	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 2 of 15

Water Quality Constituents	Units	MCL	MCL Type	Carson #2 Zone 1 03/18/05	Carson #2 Zone 1 09/21/05	Carson #2 Zone 2 03/18/05	Carson #2 Zone 2 09/21/05	Carson #2 Zone 3 03/18/05	Carson #2 Zone 3 09/21/05	Carson #2 Zone 4 03/18/05	Carson #2 Zone 4 09/21/05	Carson #2 Zone 5 03/18/05	Carson #2 Zone 5 09/21/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	230	220	260	240	270	270	270	250	270	260
Cation Sum	meq/l	0	0	3.99	3.66	4.79	4.55	4.89	4.57	4.96	4.71	4.86	4.59
Anion Sum	meq/l	0	0	3.67	3.68	4.34	4.35	4.47	4.58	4.57	4.49	4.3	4.33
Iron, Total, ICAP	mg/l	0	0.3	ND	0.023	ND	ND	ND	0.022	ND	ND	0.023	ND
Manganese, Total, ICAP/MS	ug/l	0	50	2.6	2.5	12	11	21	20	18	16	61	60
Turbidity	NTU	0	5	0.2	1.8	0.1	0.15	0.05	0.15	0.15	0.25	1.5	13
Alkalinity	mg/l	0	0	159	158	185	183	174	171	200	194	174	172
Boron	mg/l	0	0	0.13	0.12	0.13	0.14	0.12	0.13	0.1	0.12	0.11	0.12
Bicarbonate as HCO3,calculated	mg/l	0	0	191	189	224	220	211	207	243	235	212	209
Calcium, Total, ICAP	mg/l	0	0	2.3	2.2	12	12	25	24	37	35	42	40
Carbonate as CO3, Calculated	mg/l	0	0	7.83	ND	4.6	7.17	3.44	4.25	1.99	3.05	1.73	2.15
Hardness (Total, as CaCO3)	mg/l	0	0	7.43	7.06	46.8	46.4	97	92.9	142	137	144	138
Chloride	mg/l	0	500	16.6	17.9	20	20.2	19.2	20.9	19.6	21.1	18.3	20
Fluoride	mg/l	2	0	0.36	0.36	0.22	0.21	0.32	0.3	0.28	0.26	0.33	0.32
Hydroxide as OH, Calculated	mg/l	0	0	0.1	ND	0.05	ND	0.04	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None	0	0	0	0.07	0.48	0.68	0.68	0.75	0.61	0.77	0.6	0.68
Magnesium, Total, ICAP	mg/l	0	0	0.41	0.38	4.1	4	8.4	8	12	12	9.6	9.3
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	2.1	1.6	4.5	4	4.7	4.2	4.6	4.1	3.8	3.3
Sodium, Total, ICAP	mg/l	0	0	87	80	86	81	65	60	46	43	43	40
Sulfate	mg/l	0	500	ND	ND	3.06	5.05	20.9	26.5	ND	ND	13.7	14.6
Surfactants	mg/l	0	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	1.62	1.9	0.94	1.17	0.55	0.63	0.71	0.9	0.55	0.35
Carbon Dioxide	mg/l	0	0	0.605	ND	1.42	ND	1.68	ND	3.86	ND	3.37	2.16
General Physical													
Apparent Color	ACU	0	15	30	35	20	20	5	5	5	5	3	ND
Lab pH	Units	0	0	8.8	8.9	8.5	8.7	8.4	8.5	8.1	8.3	8.1	8.2
Odor	TON	0	3	4	4	4	3	4	1	4	4	3	4
pH of CaCO3 saturation(25C)	Units	0	0	8.8	8.83	8.02	8.02	7.72	7.75	7.49	7.53	7.5	7.52
pH of CaCO3 saturation(60C)	Units	0	0	8.36	8.38	7.57	7.58	7.28	7.31	7.05	7.08	7.05	7.08
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	350	342	406	367	424	392	414	435	405	431
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	ND	ND	6.1	6.7	11	13	17	18	16	18
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	2.7	ND	2.9	ND	2.7	ND	3.3	ND	2.8	ND
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.51
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 3 of 15

Water Quality Constituents	Units	MCL	MCL Type	Chandler #3a Zone 2 03/31/05	Chandler #3a Zone 2 09/29/05	Chandler #3b Zone 1 03/31/05	Chandler #3b Zone 1 09/29/05
General Mineral							
Total Dissolved Solid (TDS)	mg/l	0	1000	1040	850	610	620
Cation Sum	meq/l	0	0	16.8	14.5	10.7	10.8
Anion Sum	meq/l	0	0	16.6	14	10.6	10.4
Iron, Total, ICAP	mg/l	0	0.3	ND	ND	0.21	0.21
Manganese, Total, ICAP/MS	ug/l	0	50	25	20	86	80
Turbidity	NTU	0	5	2.9	4.5	1.6	1.3
Alkalinity	mg/l	0	0	368	345	330	309
Boron	mg/l	0	0	0.36	0.33	0.17	0.2
Bicarbonate as HCO3,calculated	mg/l	0	0	449	420	402	376
Calcium, Total, ICAP	mg/l	0	0	150	130	74	73
Carbonate as CO3, Calculated	mg/l	0	0	1.16	2.17	1.65	ND
Hardness (Total, as CaCO3)	mg/l	0	0	531	461	271	273
Chloride	mg/l	0	500	218	182	136	142
Fluoride	mg/l	2	0	0.21	0.21	0.26	0.27
Hydroxide as OH, Calculated	mg/l	0	0	0.007	ND	0.01	ND
Langelier Index - 25 degree	None	0	0	0.98	1.2	0.83	0.89
Magnesium, Total, ICAP	mg/l	0	0	38	33	21	22
Mercury	ug/l	2	0	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	21.4	12.8	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	4.8	3.6	3.6	3.1
Sodium, Total, ICAP	mg/l	0	0	140	120	120	120
Sulfate	mg/l	0	500	74	51.8	6.83	8.05
Surfactants	mg/l	0	0.5	0.057	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	21.4	12.8	ND	ND
Total Organic Carbon	mg/l	0	0	1.21	0.9	0.88	1.67
Carbon Dioxide	mg/l	0	0	22.6	8.67	12.7	7.76
General Physical							
Apparent Color	ACU	0	15	3	5	10	10
Lab pH	Units	0	0	7.6	7.9	7.8	7.9
Odor	TON	0	3	2	1	2	1
pH of CaCO3 saturation(25C)	Units	0	0	6.62	6.71	6.97	7.01
pH of CaCO3 saturation(60C)	Units	0	0	6.17	6.26	6.53	6.56
Radon	pCi/l	0	0				
Specific Conductance	umho/cm	0	1600	1580	1140	983	878
Metal							
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	2.8	1.9	2.2	2.9
Barium, Total, ICAP/MS	ug/l	1000	0	58	60	100	63
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	6.2	1.2	4.4	ND
Hexavalent Chromium (Cr VI)	mg/l	0	0				
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	140	77	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	9.5	5.8	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	7.9	ND	ND	ND
Volatile Organic Compounds							
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND
Perchlorate	ug/l	0	0				

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 4 of 15

Water Quality Constituents	Units	MCL	MCL Type	Gardena #1 Zone 1 03/16/05	Gardena #1 Zone 1 09/12/05	Gardena #1 Zone 2 03/16/05	Gardena #1 Zone 2 09/12/05	Gardena #1 Zone 3 03/16/05	Gardena #1 Zone 3 09/12/05	Gardena #1 Zone 4 03/16/05	Gardena #1 Zone 4 09/12/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	0	1000	150	260	320	330	320	330	1600	1950
Cation Sum	meq/l	0	0	2.77	5.62	5.74	4.72	5.28	5.79	24.9	25.5
Anion Sum	meq/l	0	0	2.75	4.56	5.4	5.35	5.17	5.27	23.2	25.4
Iron, Total, ICAP	mg/l	0	0.3	ND	ND	ND	0.056	ND	ND	ND	ND
Manganese, Total, ICAP/MS	ug/l	0	50	63	31	61	73	37	58	ND	ND
Turbidity	NTU	0	5	5.9	8.8	3.8	4.5	6.7	34	8.1	9
Alkalinity	mg/l	0	0	113	198	179	179	163	164	163	166
Boron	mg/l	0	0	0.13	0.099	0.12	0.21	0.11	0.12	0.12	0.11
Bicarbonate as HCO3,calculated	mg/l	0	0	137	241	218	218	198	199	199	202
Calcium, Total, ICAP	mg/l	0	0	26	56	55	28	52	56	270	280
Carbonate as CO3, Calculated	mg/l	0	0	1.41	2.48	1.42	ND	1.62	ND	0.325	ND
Hardness (Total, as CaCO3)	mg/l	0	0	85.9	185	191	106	171	193	995	1030
Chloride	mg/l	0	500	5.98	10.7	21	31.6	20.2	21.8	640	715
Fluoride	mg/l	2	0	0.16	0.19	0.43	0.44	0.4	0.39	0.2	0.18
Hydroxide as OH, Calculated	mg/l	0	0	0.03	ND	0.02	ND	0.02	ND	0.004	ND
Langelier Index - 25 degree	None	0	0	0.31	0.89	0.63	0.44	0.67	0.7	0.69	0.81
Magnesium, Total, ICAP	mg/l	0	0	5.1	11	13	8.8	10	13	78	80
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	12.8	13
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	3.8	3.3	3.8	8.1	3.1	3.7	6.2	6
Sodium, Total, ICAP	mg/l	0	0	22	42	42	55	41	42	110	110
Sulfate	mg/l	0	500	15.1	13.6	57.9	40.9	63.4	65.1	44.5	44.6
Surfactants	mg/l	0	0.5	0.052	ND	ND	ND	ND	ND	0.087	0.055
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	12.8	13
Total Organic Carbon	mg/l	0	0	1.95	0.37	ND	2.66	0.34	ND	0.54	ND
Carbon Dioxide	mg/l	0	0	1.73	2.49	4.36	2.84	3.15	2.59	15.8	10.5
General Physical											
Apparent Color	ACU	0	15	10	20	3	3	3	5	3	3
Lab pH	Units	0	0	8.2	8.2	8	8.1	8.1	8.1	7.4	7.5
Odor	TON	0	3	4	3	2	2	1	2	2	2
pH of CaCO3 saturation(25C)	Units	0	0	7.89	7.31	7.37	7.66	7.43	7.4	6.71	6.69
pH of CaCO3 saturation(60C)	Units	0	0	7.45	6.87	6.92	7.22	6.99	6.95	6.27	6.25
Radon	pCi/l	0	0								
Specific Conductance	umho/cm	0	1600	225	472	529	543	435	537	2190	2620
Metal											
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	29	ND	ND	105	1.1	ND	1	ND
Barium, Total, ICAP/MS	ug/l	1000	0	19	28	58	20	30	55	320	310
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	3.2	1.9	4.9	2.3	4.4	2.1	11	7.8
Hexavalent Chromium (Cr VI)	mg/l	0	0								
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	18	6.1
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	7.2	ND	5.6	35
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 5 of 15

Water Quality Constituents	Units	MCL	MCL Type	Gardena #2 Zone 1 03/07/05	Gardena #2 Zone 1 09/13/05	Gardena #2 Zone 2 03/07/05	Gardena #2 Zone 2 09/13/05	Gardena #2 Zone 3 03/07/05	Gardena #2 Zone 3 09/13/05	Gardena #2 Zone 4 03/07/05	Gardena #2 Zone 4 09/13/05	Gardena #2 Zone 5 03/07/05	Gardena #2 Zone 5 09/13/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	330	330	320	310	320	300	220	220	320	290
Cation Sum	meq/l	0	0	5.79	5.79	5.47	4.91	5.41	5.22	4.16	4.11	5.44	5.3
Anion Sum	meq/l	0	0	5.92	5.83	5.24	5.12	5.17	5.04	3.99	3.89	5.16	4.95
Iron, Total, ICAP	mg/l	0	0.3	0.025	0.029	0.041	0.043	0.068	0.052	ND	ND	0.071	0.047
Manganese, Total, ICAP/MS	ug/l	0	50	30	26	43	45	77	66	40	36	110	94
Turbidity	NTU	0	5	3.2	5.8	0.2	0.2	0.25	0.5	1.4	0.8	0.3	0.4
Alkalinity	mg/l	0	0	277	274	176	175	171	169	170	168	187	183
Boron	mg/l	0	0	0.28	0.31	0.15	0.17	0.12	0.13	0.081	0.1	0.11	0.13
Bicarbonate as HCO3,calculated	mg/l	0	0	335	332	213	212	207	205	206	204	227	222
Calcium, Total, ICAP	mg/l	0	0	16	16	38	34	50	48	32	32	49	48
Carbonate as CO3, Calculated	mg/l	0	0	6.88	6.82	3.48	2.75	3.38	3.35	3.36	2.65	3.71	2.88
Hardness (Total, as CaCO3)	mg/l	0	0	65.1	65.1	144	130	174	169	117	117	168	165
Chloride	mg/l	0	500	13.2	11.9	21.5	19.3	22	19.8	20.5	18.5	35.9	32.5
Fluoride	mg/l	2	0	0.24	0.2	0.26	0.19	0.37	0.28	0.28	0.22	0.31	0.27
Hydroxide as OH, Calculated	mg/l	0	0	0.05	ND	0.04	ND	0.04	ND	0.04	ND	0.04	ND
Langelier Index - 25 degree	None	0	0	0.78	0.78	0.86	0.71	0.97	0.95	0.77	0.67	1	0.88
Magnesium, Total, ICAP	mg/l	0	0	6.1	6.1	12	11	12	12	9	8.9	11	11
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	5.4	5.4	5.7	5.3	3.7	3.6	3.1	3.1	3.2	3
Sodium, Total, ICAP	mg/l	0	0	100	100	56	50	42	40	40	39	46	44
Sulfate	mg/l	0	500	ND	ND	52.9	51	53.2	52	ND	ND	18.9	17.1
Surfactants	mg/l	0	0.5	ND	ND	ND	ND	ND	ND	0.069	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	2.91	3.2	0.58	0.6	0.33	0.4	0.43	0.55	ND	ND
Carbon Dioxide	mg/l	0	0	2.12	ND	1.7	ND	1.65	ND	1.64	ND	1.81	ND
General Physical													
Apparent Color	ACU	0	15	25	25	5	5	3	3	3	3	3	3
Lab pH	Units	0	0	8.5	8.5	8.4	8.3	8.4	8.4	8.4	8.3	8.4	8.3
Odor	TON	0	3	2	4	2	3	3	3	3	2	4	2
pH of CaCO3 saturation(25C)	Units	0	0	7.72	7.72	7.54	7.59	7.43	7.45	7.63	7.63	7.4	7.42
pH of CaCO3 saturation(60C)	Units	0	0	7.27	7.27	7.09	7.14	6.99	7.01	7.18	7.19	6.96	6.97
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	528	524	488	480	488	463	372	356	485	455
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	26	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	20	19	16	17	19	19	57	56	62	63
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	6.4	2.7	4.8	1.7	4.4	1.5	4.4	1.5	4.7	2.1
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 6 of 15

Water Quality Constituents	Units	MCL	MCL Type	Hawthorne #1 Zone 1 03/29/05	Hawthorne #1 Zone 1 09/19/05	Hawthorne #1 Zone 2 03/29/05	Hawthorne #1 Zone 2 09/19/05	Hawthorne #1 Zone 3 03/29/05	Hawthorne #1 Zone 3 09/19/05	Hawthorne #1 Zone 4 03/29/05	Hawthorne #1 Zone 4 09/19/05	Hawthorne #1 Zone 5 03/29/05	Hawthorne #1 Zone 5 09/19/05	Hawthorne #1 Zone 6 03/29/05	Hawthorne #1 Zone 6 09/19/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	0	1000	900	890	800	800	590	570	440	470	1000	920	2060	2010
Cation Sum	meq/l	0	0	15.4	14.8	13.6	13.7	10.5	10.7	7.93	8.83	15.2	15.2	33.3	33.3
Anion Sum	meq/l	0	0	16.4	14.7	14.4	13.2	11.1	10.2	8.03	7.91	15.2	14.4	33.5	33
Iron, Total, ICAP	mg/l	0	0.3	0.16	0.16	0.14	0.13	0.22	0.22	0.047	0.052	0.03	0.026	0.25	0.13
Manganese, Total, ICAP/MS	ug/l	0	50	14	15	53	280	74	75	40	49	190	190	710	790
Turbidity	NTU	0	5	1.9	1.3	0.35	0.8	1.3	0.5	2.1	7.6	0.2	0.45	8.3	1.9
Alkalinity	mg/l	0	0	752	674	659	599	499	451	334	312	230	201	363	306
Boron	mg/l	0	0	1.3	1.4	0.92	1	0.51	0.57	0.34	0.39	0.13	0.16	0.29	0.35
Bicarbonate as HCO3,calculated	mg/l	0	0	910	820	798	727	604	549	405	380	279	245	441	373
Calcium, Total, ICAP	mg/l	0	0	15	15	15	16	35	36	39	45	130	130	280	280
Carbonate as CO3, Calculated	mg/l	0	0	18.7	5.33	16.4	9.43	12.4	4.49	6.61	2.47	2.87	ND	3.61	ND
Hardness (Total, as CaCO3)	mg/l	0	0	91	86.9	75.8	79.9	182	189	167	191	510	510	1050	1050
Chloride	mg/l	0	500	47	43.7	41.3	43.8	38.5	40.2	47.1	58.4	333	326	581	554
Fluoride	mg/l	2	0	0.12	0.13	0.26	0.26	0.23	0.22	0.38	0.38	0.3	0.24	0.23	0.25
Hydroxide as OH, Calculated	mg/l	0	0	0.05	ND	0.05	ND	0.05	ND	0.04	ND	0.03	ND	0.02	ND
Langelier Index - 25 degree	None	0	0	1.2	0.64	1.1	0.92	1.4	0.95	1.2	0.79	1.3	0.86	1.8	1.2
Magnesium, Total, ICAP	mg/l	0	0	13	12	9.3	9.7	23	24	17	19	45	45	84	84
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	21	19	13	13	14	14	9.1	9.3	7.7	7.6	8.2	7.7
Sodium, Total, ICAP	mg/l	0	0	300	290	270	270	150	150	100	110	110	110	280	280
Sulfate	mg/l	0	500	ND	ND	ND	ND	ND	ND	ND	ND	59.2	55.3	474	531
Surfactants	mg/l	0	0.5	0.052	ND	ND	ND	ND	ND	ND	ND	0.057	ND	0.124	0.164
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.1
Total Organic Carbon	mg/l	0	0	14.8	15.4	13.8	14.7	4.52	5.05	2.38	2.98	0.87	0.7	2.65	1.72
Carbon Dioxide	mg/l	0	0	5.76	13.4	5.05	5.98	3.82	7.15	3.22	6.23	3.52	6.37	7.01	15.4
General Physical															
Apparent Color	ACU	0	15	200	200	250	200	40	40	20	20	3	3	5	3
Lab pH	Units	0	0	8.5	8	8.5	8.3	8.5	8.1	8.4	8	8.2	7.8	8.1	7.6
Odor	TON	0	3	2	3	2	4	2	2	2	4	2	2	4	2
pH of CaCO3 saturation(25C)	Units	0	0	7.31	7.36	7.37	7.38	7.12	7.15	7.25	7.21	6.89	6.94	6.35	6.43
pH of CaCO3 saturation(60C)	Units	0	0	6.86	6.91	6.92	6.93	6.67	6.7	6.8	6.77	6.44	6.5	5.91	5.98
Radon	pCi/l	0	0												
Specific Conductance	umho/cm	0	1600	1280	1410	1150	1270	892	987	695	802	1440	1520	2890	3010
Metal															
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	46	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	1.1	ND	ND	ND	ND	ND	ND	ND	ND	2.9	2.1
Barium, Total, ICAP/MS	ug/l	1000	0	32	32	26	31	36	34	34	38	140	130	70	54
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	1.4	1.3	2.5	2.8	5.1	6.2	6.1	4.2	4.3	ND	7.8	4.7
Hexavalent Chromium (Cr VI)	mg/l	0	0												
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	4.5	5.7	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	7.9	ND	ND	ND	ND	ND	ND	15	14
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	12	ND	6.7	17	8.7	ND	ND	ND	ND	ND	ND	16
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	14	18
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.9	1.2
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	8	9.2
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.3	6.6
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8	1.8
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0												

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 7 of 15

Water Quality Constituents	Units	MCL	MCL Type	Inglewood #1 Zone 1 03/07/05	Inglewood #1 Zone 1 09/12/05	Inglewood #1 Zone 3 03/30/05	Inglewood #1 Zone 3 09/19/05	Inglewood #1 Zone 4 03/30/05	Inglewood #1 Zone 4 09/19/05	Inglewood #1 Zone 5 03/30/05	Inglewood #1 Zone 5 09/19/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	0	1000	1820	2520	1030	990	760	760	1390	1220
Cation Sum	meq/l	0	0	31.3	41.7	16.7	17.8	12.4	13	19	19.7
Anion Sum	meq/l	0	0	30.6	41.8	16.9	16.5	12.6	12.5	19	18.7
Iron, Total, ICAP	mg/l	0	0.3	1.2	0.3	0.35	0.39	0.3	0.34	ND	ND
Manganese, Total, ICAP/MS	ug/l	0	50	49	35	270	280	180	200	2	2.9
Turbidity	NTU	0	5	7.1	1.4	1.7	2.1	1.2	1.8	0.3	0.8
Alkalinity	mg/l	0	0	562	811	330	297	245	218	305	273
Boron	mg/l	0	0	2.5	4.7	0.37	0.42	0.18	0.2	0.24	0.27
Bicarbonate as HCO3,calculated	mg/l	0	0	684	988	402	362	298	266	372	333
Calcium, Total, ICAP	mg/l	0	0	160	160	110	120	93	99	170	180
Carbonate as CO3, Calculated	mg/l	0	0	3.53	3.22	2.61	ND	1.94	ND	1.53	ND
Hardness (Total, as CaCO3)	mg/l	0	0	630	626	456	489	397	424	659	692
Chloride	mg/l	0	500	611	854	273	285	214	222	338	348
Fluoride	mg/l	2	0	0.34	0.31	0.52	0.5	0.43	0.41	0.25	0.26
Hydroxide as OH, Calculated	mg/l	0	0	0.01	ND	0.02	ND	0.02	ND	0.01	ND
Langelier Index - 25 degree	None	0	0	1.5	1.4	1.2	1.1	1	0.78	1.2	0.73
Magnesium, Total, ICAP	mg/l	0	0	56	55	44	46	40	43	57	59
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	8.3	8.64
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	17	17	7.3	7.2	9.5	9.5	7.2	7.2
Sodium, Total, ICAP	mg/l	0	0	420	660	170	180	96	98	130	130
Sulfate	mg/l	0	500	101	71.1	122	122	80.4	88.6	133	134
Surfactants	mg/l	0	0.5	0.11	0.138	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	8.3	8.64
Total Organic Carbon	mg/l	0	0	13.6	25.8	1.05	1.04	0.63	0.64	0.75	0.53
Carbon Dioxide	mg/l	0	0	17.2	32.3	8.04	7.47	5.96	6.91	11.8	21.7
General Physical											
Apparent Color	ACU	0	15	60	150	10	10	10	10	ND	ND
Lab pH	Units	0	0	7.9	7.7	8	7.9	8	7.8	7.8	7.4
Odor	TON	0	3	3	3	1	2	1	2	1	1
pH of CaCO3 saturation(25C)	Units	0	0	6.41	6.25	6.8	6.81	7	7.02	6.64	6.67
pH of CaCO3 saturation(60C)	Units	0	0	5.96	5.8	6.35	6.36	6.56	6.58	6.2	6.22
Radon	pCi/l	0	0								
Specific Conductance	umho/cm	0	1600	2930	3860	1570	1660	1260	1300	1800	1900
Metal											
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	3.7	1.2	ND	ND	1.5	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	240	250	37	36	100	99	200	200
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	19	1.7	7.6	4.4	ND	3.1	ND	5.3
Hexavalent Chromium (Cr VI)	mg/l	0	0								
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	9.7	ND	ND	ND	ND	ND	ND	5.8
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	0.79	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	7.1	ND	5.8	ND	16	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	0	6.7	3.8	ND	ND	ND	ND	5.8	3.7
Tetrachloroethylene (PCE)	ug/l	5	0	0.7	ND	ND	ND	ND	ND	0.8	ND
1,1-Dichloroethylene	ug/l	6	0	0.5	ND	ND	ND	ND	ND	0.6	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 8 of 15

Water Quality Constituents	Units	MCL	MCL Type	Lomita #1 Zone 1 03/15/05	Lomita #1 Zone 1 09/15/05	Lomita #1 Zone 2 03/15/05	Lomita #1 Zone 2 09/15/05	Lomita #1 Zone 3 03/15/05	Lomita #1 Zone 3 09/15/05	Lomita #1 Zone 4 03/15/05	Lomita #1 Zone 4 09/15/05	Lomita #1 Zone 5 03/15/05	Lomita #1 Zone 5 09/15/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	1290	1280	880	910	810	770	620	590	1270	1320
Cation Sum	meq/l	0	0	21	21.1	15.1	15.1	13.9	14.4	11.2	11.6	20.8	20.9
Anion Sum	meq/l	0	0	20.2	20.7	14.4	14.6	13.8	13.3	10.4	10.1	19.9	20.3
Iron, Total, ICAP	mg/l	0	0.3	0.4	0.24	0.023	ND	ND	ND	ND	ND	0.11	0.1
Manganese, Total, ICAP/MS	ug/l	0	50	280	310	130	140	110	100	93	100	250	270
Turbidity	NTU	0	5	1.5	1.1	4.2	4.2	4.7	6.6	1.9	0.95	5	0.85
Alkalinity	mg/l	0	0	251	246	238	234	280	273	237	230	252	246
Boron	mg/l	0	0	0.59	0.61	0.41	0.44	0.38	0.39	0.36	0.39	0.54	0.56
Bicarbonate as HCO3,calculated	mg/l	0	0	306	300	290	285	341	332	289	280	307	300
Calcium, Total, ICAP	mg/l	0	0	140	140	100	100	86	85	67	72	150	150
Carbonate as CO3, Calculated	mg/l	0	0	0.997	ND	1.19	ND	1.4	ND	1.49	ND	1	ND
Hardness (Total, as CaCO3)	mg/l	0	0	510	514	369	373	314	315	246	266	543	548
Chloride	mg/l	0	500	530	549	320	329	270	264	188	186	510	529
Fluoride	mg/l	2	0	0.12	0.1	0.16	0.11	0.16	0.12	0.22	0.17	0.11	0.08
Hydroxide as OH, Calculated	mg/l	0	0	0.009	ND	0.01	ND	0.01	ND	0.01	ND	0.009	ND
Langelier Index - 25 degree	None	0	0	0.89	0.88	0.82	0.71	0.82	0.91	0.74	0.86	0.92	1
Magnesium, Total, ICAP	mg/l	0	0	39	40	29	30	24	25	19	21	41	42
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	14	14	12	11	10	10	8.5	8.9	14	14
Sodium, Total, ICAP	mg/l	0	0	240	240	170	170	170	180	140	140	220	220
Sulfate	mg/l	0	500	12.3	13.9	27.9	30.9	28.6	16.4	14.4	11.9	21.2	20.1
Surfactants	mg/l	0	0.5	ND	0.057	ND	ND	0.052	ND	0.057	ND	0.079	0.054
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	0.9	0.96	2.28	1.31	2.57	2.51	2	2.2	0.77	0.84
Carbon Dioxide	mg/l	0	0	12.2	9.82	9.19	9.33	10.8	6.85	7.28	4.59	12.3	7.8
General Physical													
Apparent Color	ACU	0	15	15	10	10	20	15	20	30	25	3	5
Lab pH	Units	0	0	7.7	7.7	7.8	7.7	7.8	7.9	7.9	8	7.7	7.8
Odor	TON	0	3	2	3	2	4	2	4	8	4	16	3
pH of CaCO3 saturation(25C)	Units	0	0	6.81	6.82	6.98	6.99	6.98	6.99	7.16	7.14	6.78	6.79
pH of CaCO3 saturation(60C)	Units	0	0	6.37	6.38	6.54	6.55	6.53	6.55	6.71	6.7	6.34	6.35
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	2220	2040	1560	1500	1410	1310	1090	996	2130	2030
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	1.5	ND	ND	ND	1.7	ND	ND	ND	1.3
Barium, Total, ICAP/MS	ug/l	1000	0	92	80	66	58	56	45	39	41	95	82
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	9.1	5.4	7.7	1.4	9.7	1.4	7.2	5.1	7.9	5.6
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	10	ND	6.8	ND	6.2	ND	ND	ND	9.6	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 9 of 15

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #3 Zone 1 03/10/05	Long Beach #3 Zone 1 09/07/05	Long Beach #3 Zone 2 03/10/05	Long Beach #3 Zone 2 09/07/05	Long Beach #3 Zone 3 03/10/05	Long Beach #3 Zone 3 09/07/05	Long Beach #3 Zone 4 03/10/05	Long Beach #3 Zone 4 09/07/05	Long Beach #3 Zone 5 03/10/05	Long Beach #3 Zone 5 09/07/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	450	460	240	230	260	260	1660	1710	2000	2080
Cation Sum	meq/l	0	0	7.88	7.88	3.8	3.81	4.22	4.28	21.8	23.8	26.1	28.1
Anion Sum	meq/l	0	0	7.72	7.61	3.64	3.6	4.1	4.01	22.6	23.8	27.1	27.9
Iron, Total, ICAP	mg/l	0	0.3	0.054	0.045	ND	ND	ND	0.022	0.048	0.065	0.22	0.25
Manganese, Total, ICAP/MS	ug/l	0	50	15	12	11	7.9	19	14	250	260	380	370
Turbidity	NTU	0	5	1.2	0.4	0.4	0.3	0.95	0.7	0.8	0.85	1.1	1.6
Alkalinity	mg/l	0	0	362	357	133	132	160	157	130	126	132	131
Boron	mg/l	0	0	0.34	0.37	0.13	0.13	0.13	0.14	0.096	0.11	0.099	0.12
Bicarbonate as HCO3,calculated	mg/l	0	0	438	433	161	160	194	191	158	153	161	160
Calcium, Total, ICAP	mg/l	0	0	11	11	17	17	22	22	240	260	310	330
Carbonate as CO3, Calculated	mg/l	0	0	9	7.07	3.31	2.07	2.52	2.48	0.816	ND	0.831	ND
Hardness (Total, as CaCO3)	mg/l	0	0	41.5	41.9	54.4	54.8	70.6	71.4	859	937	1070	1150
Chloride	mg/l	0	500	15.9	15.8	17.3	17	31.2	30.2	660	705	820	849
Fluoride	mg/l	2	0	0.55	0.5	0.4	0.32	0.34	0.28	0.18	0.14	0.18	0.15
Hydroxide as OH, Calculated	mg/l	0	0	0.05	ND	0.05	ND	0.03	ND	0.01	ND	0.01	ND
Langelier Index - 25 degree	None	0	0	0.74	0.63	0.49	0.29	0.49	0.48	1	0.95	1.2	1.1
Magnesium, Total, ICAP	mg/l	0	0	3.4	3.5	2.9	3	3.8	4	63	70	73	80
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	3.7	3.5	2.3	2.2	2.5	2.5	11	11	9.4	9.5
Sodium, Total, ICAP	mg/l	0	0	160	160	61	61	63	64	100	110	100	110
Sulfate	mg/l	0	500	ND	ND	22.6	22.4	ND	ND	64.5	64.7	64.1	65.5
Surfactants	mg/l	0	0.5	ND	ND	ND	ND	ND	ND	0.074	0.054	0.09	0.06
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	6.99	7.95	1.28	1.41	2.65	2.86	0.54	0.4	0.55	0.43
Carbon Dioxide	mg/l	0	0	2.77	2.83	1.02	ND	1.94	ND	3.98	3.98	4.05	4.16
General Physical													
Apparent Color	ACU	0	15	70	80	20	20	20	25	3	3	3	5
Lab pH	Units	0	0	8.5	8.4	8.5	8.3	8.3	8.3	7.9	7.8	7.9	7.8
Odor	TON	0	3	2	2	1	3	1	3	1	1	2	3
pH of CaCO3 saturation(25C)	Units	0	0	7.76	7.77	8.01	8.01	7.81	7.82	6.87	6.85	6.75	6.72
pH of CaCO3 saturation(60C)	Units	0	0	7.32	7.32	7.57	7.57	7.37	7.38	6.42	6.4	6.3	6.28
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	672	755	339	385	375	429	2140	2480	2590	2880
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	3.7	ND	1
Barium, Total, ICAP/MS	ug/l	1000	0	10	8.2	13	11	11	11	88	96	150	160
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	ND	ND	1.8	ND	2.1	ND	1.6	ND	1.4	ND
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	8.4	5.4	11	6.7
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	21	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	0.96	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	24	ND	ND	ND	ND	ND	ND	ND	16	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 10 of 15

Water Quality Constituents	Units	MCL	MCL Type	Long Beach #8 Zone 1 02/28/05	Long Beach #8 Zone 1 08/17/05	Long Beach #8 Zone 2 02/24/05	Long Beach #8 Zone 2 08/18/05	Long Beach #8 Zone 3 02/24/05	Long Beach #8 Zone 3 08/18/05	Long Beach #8 Zone 4 02/25/05	Long Beach #8 Zone 4 08/19/05	Long Beach #8 Zone 5 02/25/05	Long Beach #8 Zone 5 08/17/05	Long Beach #8 Zone 6 02/25/05	Long Beach #8 Zone 6 08/17/05
General Mineral															
Total Dissolved Solid (TDS)	mg/l	0	1000	690	680	640	630	890	920	1390	1340	1050	1000	1060	1020
Cation Sum	meq/l	0	0	11.4	11.4	10.3	10.3	14.6	15	23.8	22.1	18.1	16.9	17.2	16.1
Anion Sum	meq/l	0	0	11	10.9	9.88	9.89	14.3	14.6	23.2	23.6	17.3	17.6	16.8	16.4
Iron, Total, ICAP	mg/l	0	0.3	0.2	0.2	0.18	0.17	0.21	0.2	0.19	0.19	0.16	0.19	0.32	0.33
Manganese, Total, ICAP/MS	ug/l	0	50	17	20	23	22	40	41	57	47	91	67	300	250
Turbidity	NTU	0	5	1.1	1.4	2.5	5.8	3.8	0.9	0.75	0.75	22	0.8	1	2.2
Alkalinity	mg/l	0	0	516	509	442	443	596	602	384	382	292	293	198	197
Boron	mg/l	0	0	1.1	1.1	0.76	0.74	1.2	1.3	0.97	1	0.53	0.59	0.17	0.2
Bicarbonate as HCO3,calculated	mg/l	0	0	625	619	534	538	723	732	466	465	354	355	241	240
Calcium, Total, ICAP	mg/l	0	0	6.5	6.7	8.1	8.2	10	10	49	49	61	57	110	100
Carbonate as CO3, Calculated	mg/l	0	0	12.8	6.38	13.8	6.98	11.8	7.54	7.61	3.02	4.59	5.79	1.97	1.96
Hardness (Total, as CaCO3)	mg/l	0	0	24.1	25	31.8	32.4	44.7	45.1	262	262	264	249	419	386
Chloride	mg/l	0	500	22	22.4	35.2	35.1	84.4	88.5	551	564	406	415	438	426
Fluoride	mg/l	2	0	0.94	0.83	0.92	0.82	0.63	0.59	0.24	0.22	0.2	0.21	0.54	0.5
Hydroxide as OH, Calculated	mg/l	0	0	0.05	0.03	0.07	0.03	0.04	0.03	0.04	0.02	0.03	0.04	0.02	0.02
Langelier Index - 25 degree	None	0	0	0.66	0.37	0.79	0.5	0.81	0.62	1.3	0.91	1.2	1.3	1.1	1
Magnesium, Total, ICAP	mg/l	0	0	1.9	2	2.8	2.9	4.8	4.9	34	34	27	26	35	33
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	2.8	2.3	4.7	4.1	7.9	7.3	13	12	10	8.5	6.7	5.7
Sodium, Total, ICAP	mg/l	0	0	250	250	220	220	310	320	420	380	290	270	200	190
Sulfate	mg/l	0	500	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	21	20
Surfactants	mg/l	0	0.5	0.052	ND	0.052	ND	0.067	ND	ND	0.088	ND	0.054	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	20.7	19	20.9	22.3	28.6	32	16.2	10.8	12.9	8.48	1.09	0.67
Carbon Dioxide	mg/l	0	0	3.95	6.41	2.68	4.42	5.76	7.57	3.71	7.63	3.55	2.32	3.83	3.13
General Physical															
Apparent Color	ACU	0	15	700	700	300	300	400	350	70	60	35	50	5	10
Lab pH	Units	0	0	8.5	8.2	8.6	8.3	8.4	8.2	8.4	8	8.3	8.4	8.1	8.1
Odor	TON	0	3	17	17	8	17	8	17	8	8	8	17	8	17
pH of CaCO3 saturation(25C)	Units	0	0	7.84	7.83	7.81	7.8	7.59	7.58	7.09	7.09	7.11	7.14	7.02	7.06
pH of CaCO3 saturation(60C)	Units	0	0	7.39	7.38	7.36	7.35	7.14	7.13	6.64	6.64	6.66	6.69	6.58	6.62
Radon	pCi/l	0	0	52	71	ND	ND	ND	ND	170	140	71	ND	150	170
Specific Conductance	umho/cm	0	1600	1040	997	941	934	1350	1370	2400	2380	1850	1810	1800	1660
Metal															
Aluminum, Total, ICAP/MS	ug/l	1000	200	30	27	85	53	27	27	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	1.6	1.7	1.3	ND	2.1	1.8	ND	ND	1.2	1.8	1.5	1.6
Barium, Total, ICAP/MS	ug/l	1000	0	8.6	11	8.3	9.5	14	18	30	30	22	18	98	90
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	1.9	1.4	1.8	1.5	2	2.1	1.2	ND	1.5	ND	4.7	ND
Hexavalent Chromium (Cr VI)	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	4.9	5.4	11	7.9	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	0.6	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	5.4	ND	5.8	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	6.5	ND	ND	ND	ND	ND	5	ND	ND	ND	ND	ND
Volatile Organic Compounds															
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 11 of 15

Water Quality Constituents	Units	MCL	MCL Type	PM-3 Madrid Zone 1 05/11/05	PM-3 Madrid Zone 1 09/25/05	PM-3 Madrid Zone 2 05/11/05	PM-3 Madrid Zone 2 09/25/05	PM-3 Madrid Zone 3 05/11/05	PM-3 Madrid Zone 3 09/25/05	PM-3 Madrid Zone 4 05/11/05	PM-3 Madrid Zone 4 09/25/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	0	1000	400	380	280	300	730	710	1000	960
Cation Sum	meq/l	0	0	6.9	6.92	5.02	5.44	11	10.9	14.8	13.7
Anion Sum	meq/l	0	0	7.26	6.71	5.17	5.04	11.2	10.4	15.1	14.8
Iron, Total, ICAP	mg/l	0	0.3	0.062	0.058	0.11	0.13	0.087	0.073	0.48	0.54
Manganese, Total, ICAP/MS	ug/l	0	50	30	31	34	41	55	54	330	330
Turbidity	NTU	0	5	0.75	1.8	0.25	0.4	3.3	2.9	4	5
Alkalinity	mg/l	0	0	331	304	208	191	206	188	209	192
Boron	mg/l	0	0	0.32	0.36	0.095	0.11	0.11	0.13	0.29	0.32
Bicarbonate as HCO3,calculated	mg/l	0	0	401	368	252	232	250	229	254	234
Calcium, Total, ICAP	mg/l	0	0	12	12	38	42	98	97	120	110
Carbonate as CO3, Calculated	mg/l	0	0	8.24	7.56	3.27	2.39	2.05	ND	1.31	ND
Hardness (Total, as CaCO3)	mg/l	0	0	68.7	68.7	140	154	360	353	448	415
Chloride	mg/l	0	500	22.1	21.6	35.1	42.3	251	236	349	348
Fluoride	mg/l	2	0	0.31	0.33	0.39	0.42	0.34	0.36	0.28	0.29
Hydroxide as OH, Calculated	mg/l	0	0	0.05	ND	0.03	ND	0.02	ND	0.01	ND
Langelier Index - 25 degree	None	0	0	0.74	0.7	0.84	0.74	1	0.9	0.94	0.87
Magnesium, Total, ICAP	mg/l	0	0	9.4	9.4	11	12	28	27	36	34
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	12	13	3.1	3.4	5.4	5.4	7.1	6.5
Sodium, Total, ICAP	mg/l	0	0	120	120	49	52	83	86	130	120
Sulfate	mg/l	0	500	ND	ND	ND	ND	ND	ND	51.8	51.8
Surfactants	mg/l	0	0.5	ND	ND	ND	ND	ND	ND	0.067	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	2.97	3.3	0.55	0.59	0.86	0.69	0.86	0.66
Carbon Dioxide	mg/l	0	0	2.54	ND	2.53	2.4	3.97	3.76	6.4	4.83
General Physical											
Apparent Color	ACU	0	15	35	35	3	5	5	3	10	5
Lab pH	Units	0	0	8.5	8.5	8.3	8.2	8.1	8	7.9	7.9
Odor	TON	0	3	4	4	3	3	4	4	4	4
pH of CaCO3 saturation(25C)	Units	0	0	7.76	7.8	7.46	7.46	7.06	7.1	6.96	7.03
pH of CaCO3 saturation(60C)	Units	0	0	7.32	7.35	7.02	7.01	6.61	6.65	6.52	6.59
Radon	pCi/l	0	0								
Specific Conductance	umho/cm	0	1600	633	663	468	523	1160	1180	1530	1570
Metal											
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	4.5	4.5
Barium, Total, ICAP/MS	ug/l	1000	0	22	23	17	20	67	65	85	85
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	6.6	8.1	3.9	4.6	5.1	11	5.1	11
Hexavalent Chromium (Cr VI)	mg/l	0	0								
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	0.8	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	1.3	1.4
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	9.8	8.3	4.5	1.8
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	1.3	1.3	2.2	2.4
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	1.1	0.9	0.5	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 12 of 15

Water Quality Constituents	Units	MCL	MCL Type	PM-4 Mariner Zone 1 05/01/05	PM-4 Mariner Zone 1 09/25/05	PM-4 Mariner Zone 2 05/01/05	PM-4 Mariner Zone 2 09/25/05	PM-4 Mariner Zone 3 05/01/05	PM-4 Mariner Zone 3 09/25/05	PM-4 Mariner Zone 4 05/01/05	PM-4 Mariner Zone 4 09/25/05
General Mineral											
Total Dissolved Solid (TDS)	mg/l	0	1000	330	340	11800	13600	680	650	680	660
Cation Sum	meq/l	0	0	6.05	6.14	170	179	10.9	11.1	11	10.9
Anion Sum	meq/l	0	0	6.12	5.67	193	181	11.2	10.5	11.1	10.5
Iron, Total, ICAP	mg/l	0	0.3	0.07	0.066	0.2	0.2	0.032	0.031	0.15	0.14
Manganese, Total, ICAP/MS	ug/l	0	50	34	33	1200	940	57	51	81	75
Turbidity	NTU	0	5	0.3	0.25	1.4	0.25	1.3	8.8	0.8	1.4
Alkalinity	mg/l	0	0	266	247	165	154	174	170	201	188
Boron	mg/l	0	0	0.15	0.17	ND	0.19	0.31	0.33	0.23	0.26
Bicarbonate as HCO3,calculated	mg/l	0	0	323	299	201	188	211	206	244	228
Calcium, Total, ICAP	mg/l	0	0	28	28	1300	1300	71	67	80	78
Carbonate as CO3, Calculated	mg/l	0	0	4.19	4.88	0.52	ND	2.74	2.67	2.51	2.96
Hardness (Total, as CaCO3)	mg/l	0	0	119	119	4730	4770	256	241	282	277
Chloride	mg/l	0	500	27.7	25.2	6180	6100	121	112	122	116
Fluoride	mg/l	2	0	0.35	0.37	0.11	0.11	0.3	0.33	0.28	0.3
Hydroxide as OH, Calculated	mg/l	0	0	0.03	ND	0.007	ND	0.03	ND	0.03	ND
Langelier Index - 25 degree	None	0	0	0.81	0.88	1.6	1.6	1	0.99	1	1.1
Magnesium, Total, ICAP	mg/l	0	0	12	12	360	370	19	18	20	20
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	7.1	7.3	55	55	6.4	6.4	6.6	6.5
Sodium, Total, ICAP	mg/l	0	0	80	82	1700	1900	130	140	120	120
Sulfate	mg/l	0	500	ND	ND	717	301	204	187	176	166
Surfactants	mg/l	0	0.5	ND	ND	0.162	0.195	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	1.57	1.82	1.09	ND	1.54	1.48	1.12	1.11
Carbon Dioxide	mg/l	0	0	3.24	ND	10.1	6.15	2.12	ND	3.08	ND
General Physical											
Apparent Color	ACU	0	15	10	10	5	5	10	5	5	5
Lab pH	Units	0	0	8.3	8.4	7.6	7.7	8.3	8.3	8.2	8.3
Odor	TON	0	3	2	3	3	2	3	3	3	3
pH of CaCO3 saturation(25C)	Units	0	0	7.49	7.52	6.03	6.06	7.27	7.31	7.15	7.19
pH of CaCO3 saturation(60C)	Units	0	0	7.04	7.08	5.58	5.61	6.82	6.86	6.71	6.75
Radon	pCi/l	0	0								
Specific Conductance	umho/cm	0	1600	598	565	17800	17200	1190	1070	1210	1060
Metal											
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	20	21	240	250	94	93	50	54
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	ND	5.6	ND	ND	ND	ND	1.4	4.3
Hexavalent Chromium (Cr VI)	mg/l	0	0								
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	4	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	55	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds											
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0								

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 13 of 15

Water Quality Constituents	Units	MCL	MCL Type	Westchester #1 Zone 1 03/10/05	Westchester #1 Zone 1 09/19/05	Westchester #1 Zone 2 03/10/05	Westchester #1 Zone 2 09/19/05	Westchester #1 Zone 3 03/10/05	Westchester #1 Zone 3 09/19/05	Westchester #1 Zone 4 03/10/05	Westchester #1 Zone 4 09/19/05	Westchester #1 Zone 5 03/10/05	Westchester #1 Zone 5 09/19/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	1370	1380	730	720	610	590	590	570	550	550
Cation Sum	meq/l	0	0	22.6	22.2	12.4	13	11.7	11.2	10.3	10.7	9.81	10.2
Anion Sum	meq/l	0	0	22	21.3	12.3	12.2	10.2	10.3	9.92	9.89	9.36	9.32
Iron, Total, ICAP	mg/l	0	0.3	0.28	0.28	0.12	0.13	0.29	0.28	0.14	0.15	0.27	0.31
Manganese, Total, ICAP/MS	ug/l	0	50	60	53	57	86	190	180	130	130	220	220
Turbidity	NTU	0	5	2.9	0.9	0.6	0.9	0.6	0.8	0.4	0.5	1.1	1.4
Alkalinity	mg/l	0	0	921	896	529	522	407	400	341	338	305	301
Boron	mg/l	0	0	2.2	2.3	0.76	0.86	0.35	0.38	0.22	0.25	0.21	0.23
Bicarbonate as HCO3,calculated	mg/l	0	0	1120	1090	644	635	496	487	415	412	372	367
Calcium, Total, ICAP	mg/l	0	0	19	20	30	31	56	54	70	73	67	69
Carbonate as CO3, Calculated	mg/l	0	0	7.28	8.92	4.19	5.2	2.03	3.16	1.7	2.13	1.53	ND
Hardness (Total, as CaCO3)	mg/l	0	0	105	112	145	152	243	238	290	306	278	288
Chloride	mg/l	0	500	128	121	61.8	62.4	57.1	64.2	57.3	58.3	59.6	60.7
Fluoride	mg/l	2	0	0.29	0.27	0.29	0.27	0.31	0.28	0.29	0.27	0.36	0.33
Hydroxide as OH, Calculated	mg/l	0	0	0.02	ND	0.02	ND	0.01	ND	0.01	ND	0.01	ND
Langelier Index - 25 degree	None	0	0	0.88	0.99	0.84	0.95	0.8	0.97	0.82	0.93	0.75	0.76
Magnesium, Total, ICAP	mg/l	0	0	14	15	17	18	25	25	28	30	27	28
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	19	17	15	15	12	12	9.3	9.7	7.6	7.8
Sodium, Total, ICAP	mg/l	0	0	460	450	210	220	150	140	98	100	93	97
Sulfate	mg/l	0	500	ND	ND	ND	ND	21.5	24.6	70.3	70.6	74.8	75.4
Surfactants	mg/l	0	0.5	0.064	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	32.5	39.8	8.06	8.7	3.12	3.33	1.74	1.88	1.36	1.51
Carbon Dioxide	mg/l	0	0	22.4	14.2	12.9	8.27	15.7	7.99	13.2	8.51	11.8	9.54
General Physical													
Apparent Color	ACU	0	15	700	700	80	80	20	25	10	10	10	10
Lab pH	Units	0	0	8	8.1	8	8.1	7.8	8	7.8	7.9	7.8	7.8
Odor	TON	0	3	2	2	2	3	2	4	2	3	3	8
pH of CaCO3 saturation(25C)	Units	0	0	7.12	7.11	7.16	7.15	7	7.03	6.98	6.97	7.05	7.04
pH of CaCO3 saturation(60C)	Units	0	0	6.67	6.66	6.71	6.71	6.56	6.58	6.54	6.52	6.6	6.6
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	1880	2060	1090	1190	923	1000	879	968	841	919
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	1.3	ND	ND	ND	ND	1.2	ND	ND	1.5	2.3
Barium, Total, ICAP/MS	ug/l	1000	0	110	84	120	200	58	62	68	76	60	60
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	2.8	2.9	6.2	13	5.1	4.5	4.1	3	2.7	2.5
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	2.1	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	20	ND	ND	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	0.8	ND	1.7	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 14 of 15

Water Quality Constituents	Units	MCL	MCL Type	Wilmington #1 Zone 1 03/08/05	Wilmington #1 Zone 1 09/06/05	Wilmington #1 Zone 2 03/08/05	Wilmington #1 Zone 2 09/06/05	Wilmington #1 Zone 3 03/08/05	Wilmington #1 Zone 3 09/06/05	Wilmington #1 Zone 4 03/08/05	Wilmington #1 Zone 4 09/06/05	Wilmington #1 Zone 5 03/08/05	Wilmington #1 Zone 5 09/06/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	600	640	1110	1430	1540	1810	1620	1560	930	900
Cation Sum	meq/l	0	0	10.4	10.1	18.4	19.8	26	25.2	26.9	25.1	16.3	14.1
Anion Sum	meq/l	0	0	9.95	10.1	17.8	19.5	24	26.2	25.2	25.9	15.4	14
Iron, Total, ICAP	mg/l	0	0.3	ND	ND	0.042	0.035	ND	ND	0.022	0.025	0.048	0.037
Manganese, Total, ICAP/MS	ug/l	0	50	23	24	18	21	8.1	8.6	20	20	41	34
Turbidity	NTU	0	5	0.2	0.2	0.15	0.25	0.2	0.3	0.3	0.4	1.5	0.4
Alkalinity	mg/l	0	0	136	137	135	132	140	148	141	145	139	141
Boron	mg/l	0	0	0.12	0.15	0.16	0.19	0.17	0.23	0.18	0.24	0.16	0.18
Bicarbonate as HCO3,calculated	mg/l	0	0	165	167	164	161	171	180	171	177	169	172
Calcium, Total, ICAP	mg/l	0	0	65	60	150	170	180	180	120	120	130	110
Carbonate as CO3, Calculated	mg/l	0	0	1.35	ND	1.34	ND	0.701	ND	1.4	ND	1.38	ND
Hardness (Total, as CaCO3)	mg/l	0	0	249	232	519	589	635	639	464	481	502	435
Chloride	mg/l	0	500	256	259	478	535	724	797	616	635	286	241
Fluoride	mg/l	2	0	0.17	0.16	0.095	0.08	0.088	0.08	0.12	0.11	0.14	0.14
Hydroxide as OH, Calculated	mg/l	0	0	0.02	ND	0.02	ND	0.01	ND	0.02	ND	0.02	ND
Langelier Index - 25 degree	None	0	0	0.69	0.66	1	0.79	0.84	0.37	0.97	0.78	1	0.63
Magnesium, Total, ICAP	mg/l	0	0	21	20	35	40	45	46	40	44	43	39
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	8.1	7.6	7	6.8	9.2	8.4	9.6	8.7	7.6	6.7
Sodium, Total, ICAP	mg/l	0	0	120	120	180	180	300	280	400	350	140	120
Sulfate	mg/l	0	500	ND	ND	75.6	83.9	38.5	35.7	239	245	216	211
Surfactants	mg/l	0	0.5	0.38	0.277	0.601	0.305	0.424	0.279	0.257	0.169	0.337	0.2
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	3.06	2.72	2.61	2.02	2.23	2.22	1.63	1.82	2.97	2.63
Carbon Dioxide	mg/l	0	0	2.62	2.18	2.61	4.18	5.42	14.8	2.72	3.65	2.68	4.47
General Physical													
Apparent Color	ACU	0	15	5	3	3	3	10	5	5	5	3	3
Lab pH	Units	0	0	8.1	8.1	8.1	7.8	7.8	7.3	8.1	7.9	8.1	7.8
Odor	TON	0	3	40	67	67	40	100	100	17	67	67	100
pH of CaCO3 saturation(25C)	Units	0	0	7.41	7.44	7.05	7.01	6.96	6.93	7.13	7.12	7.1	7.17
pH of CaCO3 saturation(60C)	Units	0	0	6.97	7	6.61	6.56	6.51	6.49	6.69	6.67	6.66	6.72
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	1100	1140	1900	2080	2700	2810	2730	2680	1570	1470
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	1.3	ND	ND	ND	ND	ND	ND	ND	1.1
Barium, Total, ICAP/MS	ug/l	1000	0	13	12	9.8	11	27	26	55	54	82	71
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	3.8	ND	4	ND	5	ND	4.7	ND	4.1	ND
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	8.2	ND	9.6	ND	6.3	ND	6.4	ND
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	11	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	ND	ND	ND	ND	ND	ND	9.9	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.8
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.3
WEST COAST BASIN WATER QUALITY RESULTS
REGIONAL GROUNDWATER MONITORING - WATER YEAR 2004/2005
Page 15 of 15

Water Quality Constituents	Units	MCL	MCL Type	Wilmington #2 Zone 1 03/29/05	Wilmington #2 Zone 1 09/27/05	Wilmington #2 Zone 2 03/01/05	Wilmington #2 Zone 2 08/16/05	Wilmington #2 Zone 3 03/29/05	Wilmington #2 Zone 3 09/27/05	Wilmington #2 Zone 4 03/29/05	Wilmington #2 Zone 4 09/27/05	Wilmington #2 Zone 5 03/29/05	Wilmington #2 Zone 5 09/27/05
General Mineral													
Total Dissolved Solid (TDS)	mg/l	0	1000	510	530	1470	1490	480	450	2000	1890	6990	6800
Cation Sum	meq/l	0	0	8.77	8.75	24.8	25.9	8.34	8.15	31.9	29.8	109	104
Anion Sum	meq/l	0	0	9.21	8.89	24.7	25.1	8.43	7.96	32.4	31.3	113	113
Iron, Total, ICAP	mg/l	0	0.3	0.096	0.074	0.078	0.075	0.023	0.021	0.027	ND	0.024	0.025
Manganese, Total, ICAP/MS	ug/l	0	50	5.2	5.2	14	17	12	10	16	16	96	90
Turbidity	NTU	0	5	1.4	1.5	0.3	0.7	0.6	0.5	0.35	0.7	1.2	2.1
Alkalinity	mg/l	0	0	398	375	458	458	229	211	311	291	194	177
Boron	mg/l	0	0	0.63	0.61	1.6	1.7	0.25	0.27	0.47	0.54	0.28	0.63
Bicarbonate as HCO3,calculated	mg/l	0	0	478	453	557	557	278	256	378	355	236	216
Calcium, Total, ICAP	mg/l	0	0	3.4	3.3	32	35	31	29	120	110	400	380
Carbonate as CO3, Calculated	mg/l	0	0	19.6	11.7	5.74	4.56	4.54	3.32	4.9	ND	1.53	ND
Hardness (Total, as CaCO3)	mg/l	0	0	18.4	18.1	179	190	127	118	514	476	1700	1690
Chloride	mg/l	0	500	42.3	47.3	550	565	136	132	926	902	3540	3530
Fluoride	mg/l	2	0	0.99	1	0.36	0.38	0.25	0.26	0.36	0.38	0.19	0.2
Hydroxide as OH, Calculated	mg/l	0	0	0.1	ND	0.03	0.02	0.04	ND	0.03	ND	0.02	ND
Langelier Index - 25 degree	None	0	0	0.57	0.33	1	0.94	0.89	0.73	1.5	0.85	1.5	1.2
Magnesium, Total, ICAP	mg/l	0	0	2.4	2.4	24	25	12	11	52	49	170	180
Mercury	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrate-N by IC	mg/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrite, Nitrogen by IC	mg/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Potassium, Total, ICAP	mg/l	0	0	5.4	4.9	13	12	5.9	5.7	14	12	29	27
Sodium, Total, ICAP	mg/l	0	0	190	190	480	500	130	130	490	460	1700	1600
Sulfate	mg/l	0	500	ND	ND	ND	ND	ND	ND	ND	ND	463	475
Surfactants	mg/l	0	0.5	ND	ND	0.114	ND	ND	ND	0.09	0.078	0.377	0.119
Total Nitrate, Nitrite-N, CALC	mg/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Organic Carbon	mg/l	0	0	13.1	9.35	17.2	19.8	4.32	4.6	6.59	4.53	1.5	0.81
Carbon Dioxide	mg/l	0	0	1.52	ND	7.03	7.26	2.21	2.1	3.79	11.6	4.72	7.07
General Physical													
Apparent Color	ACU	0	15	350	500	100	150	30	35	50	60	15	15
Lab pH	Units	0	0	8.8	8.6	8.2	8.1	8.4	8.3	8.3	7.7	8	7.7
Odor	TON	0	3	4	2	4	8	3	2	400	40	8	4
pH of CaCO3 saturation(25C)	Units	0	0	8.23	8.27	7.19	7.16	7.51	7.57	6.79	6.85	6.47	6.53
pH of CaCO3 saturation(60C)	Units	0	0	7.79	7.82	6.75	6.71	7.07	7.13	6.34	6.41	6.03	6.09
Radon	pCi/l	0	0										
Specific Conductance	umho/cm	0	1600	786	853	2550	2540	771	814	3120	3270	10500	9620
Metal													
Aluminum, Total, ICAP/MS	ug/l	1000	200	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Antimony, Total, ICAP/MS	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic, Total, ICAP/MS	ug/l	50	0	ND	1.4	ND	ND	ND	ND	ND	ND	ND	ND
Barium, Total, ICAP/MS	ug/l	1000	0	6	6.1	49	60	14	13	87	84	84	94
Beryllium, Total, ICAP/MS	ug/l	4	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chromium, Total, ICAP/MS	ug/l	50	0	2.3	2.1	1.4	ND	3	3.9	ND	7.2	ND	5.3
Hexavalent Chromium (Cr VI)	mg/l	0	0										
Cadmium, Total, ICAP/MS	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper, Total, ICAP/MS	ug/l	0	1000	2.7	ND	ND	ND	ND	ND	ND	ND	ND	ND
Lead, Total, ICAP/MS	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nickel, Total, ICAP/MS	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	8
Selenium, Total, ICAP/MS	ug/l	50	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Silver, Total, ICAP/MS	ug/l	0	100	ND	ND	1.3	ND	ND	ND	ND	ND	ND	ND
Thallium, Total, ICAP/MS	ug/l	2	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc, Total, ICAP/MS	ug/l	0	5000	10	ND	8	ND	ND	ND	ND	ND	ND	ND
Volatile Organic Compounds													
Trichloroethylene (TCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene (PCE)	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	ug/l	6	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	ug/l	10	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform (Trichloromethane)	ug/l	100	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ug/l	0.5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane-Freon11	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Freon 113	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	ug/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m,p-Xylenes	ug/l	1750	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ug/l	5	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ug/l	150	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	ug/l	0	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	ug/l	1	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl benzene	ug/l	700	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	ng/l	0	0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perchlorate	ug/l	0	0										

MCL: Maximum Contaminant Level, bold value indicates concentration exceeds MCL. (p): Primary MCL (s): Secondary MCL (ND): Not Detected

TABLE 4.4
Priority Contaminated Sites in Central and West Coast Basins

Map Number (See Figure 4.33)	Site Name	City	Lead Agency
1	Angeles Chemical Company Inc	Santa Fe Springs	DTSC
2	McKesson Chemical Company	Santa Fe Springs	DTSC
3	Basin By-Products	Wilmington	DTSC
4	Montrose Chemical Corporation	Torrance	DTSC
5	Stauffer Chemical	Carson	DTSC
6	Chrome Crankshaft	Bell Gardens	DTSC
7	J&S Chrome Plating	Bell Gardens	DTSC
8	Wilmington/Gramercy Right-of-Way	Los Angeles	DTSC
9	Hard Chrome Products	Los Angeles	DTSC
10	Los Angeles Academy	Los Angeles	DTSC
11	Ashland Chemical	Santa Fe Springs	RWQCB-LA
12	Boeing Realty Corp C-1 Facility	Long Beach	RWQCB-LA
13	Boeing Realty Corp C-6 Facility	Los Angeles	RWQCB-LA
14	Honeywell El Segundo	El Segundo	RWQCB-LA
15	Honeywell Sepulveda	Los Angeles	RWQCB-LA
16	Industrial Polychemical	Gardena	RWQCB-LA
17	Master Sun Cleaners	Gardena	RWQCB-LA
18	Soco-Lynch	Vernon	RWQCB-LA
19	Trico Industries	Torrance	RWQCB-LA
20	TRW Hawthorne Facility	Hawthorne	RWQCB-LA
21	Golden West Refinery	Santa Fe Springs	RWQCB-LA
22	Thrifty Oil Service Station #10	Montebello	RWQCB-LA
23	Thrifty Oil Service Station #289	Pico Rivera	RWQCB-LA
24	ARCO Whittier	Whittier	RWQCB-LA
25	Cooper Drum Company	South Gate	EPA
26	Del Amo Facility	Los Angeles	EPA
27	Omega Chemical	Whittier	EPA
28	Operating Industries Inc Landfill	Monterey Park	EPA
29	Pemaco Maywood	Maywood	EPA
30	Waste Disposal Inc	Santa Fe Springs	EPA
31	Former Fairchild Controls	Manhattan Beach	RWQCB-LA
32	Cenco Refinery	Santa Fe Springs	RWQCB-LA
33	ExxonMobil Torrance	Torrance	RWQCB-LA
34	Shell Oil Products US	Carson/Wilmington	RWQCB-LA
35	BP/ARCO	Carson	RWQCB-LA
36	Conoco Phillips	Carson	RWQCB-LA

FIGURES

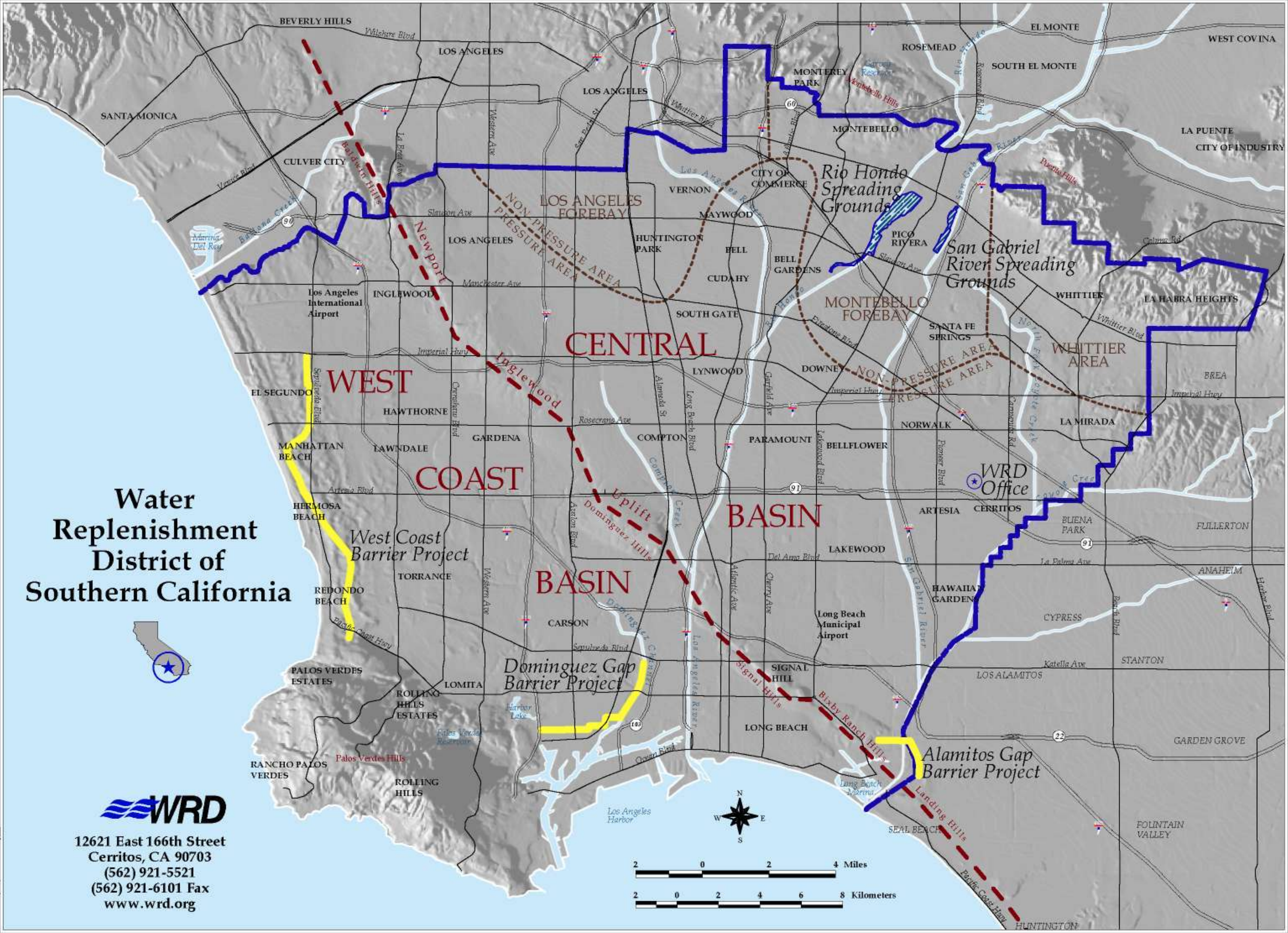
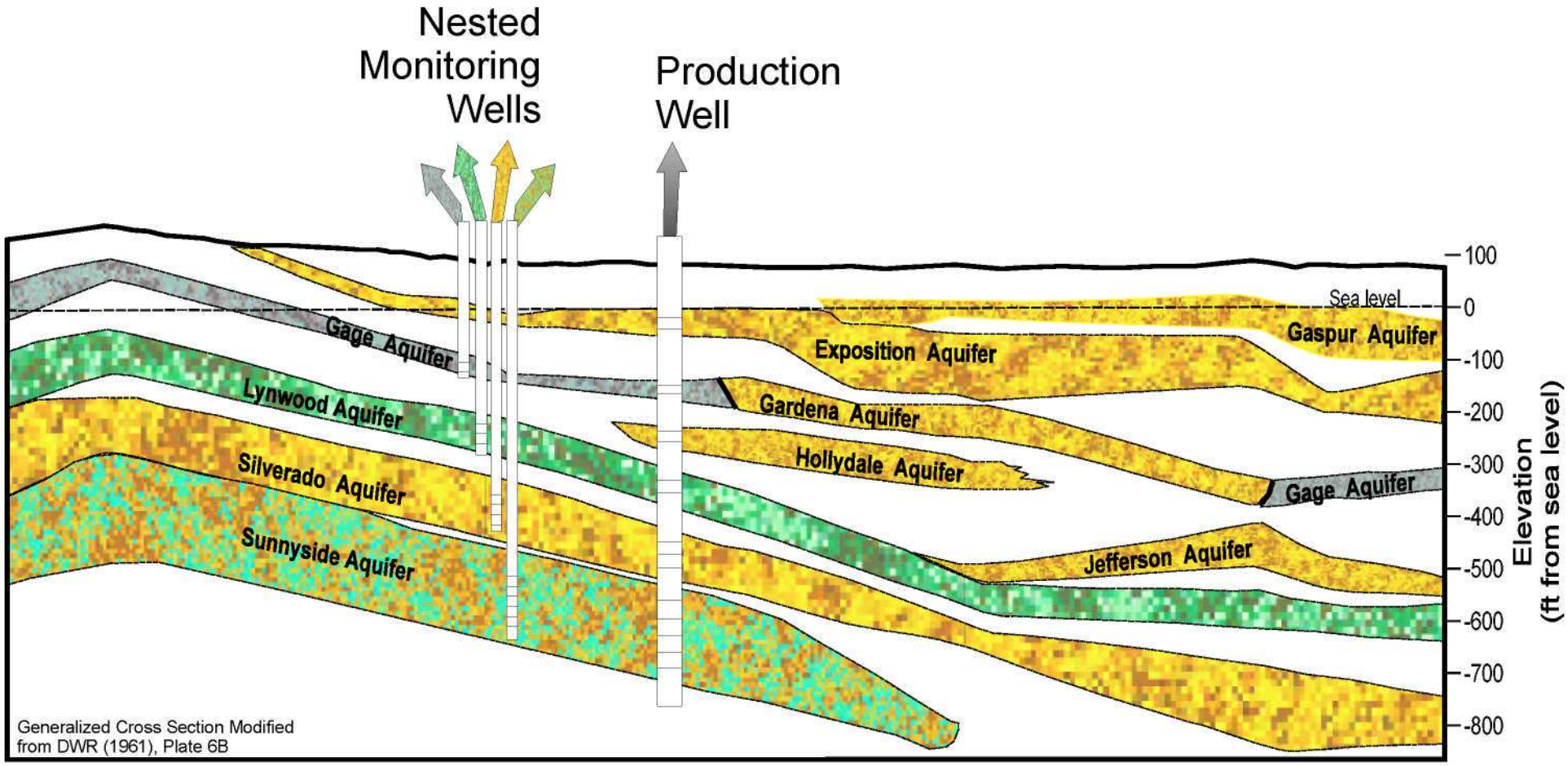

Water Replenishment District of Southern California
WRD
12621 East 166th Street
Cerritos, CA 90703
(562) 921-5521
(562) 921-6101 Fax
www.wrd.org
CENTRAL
BASIN
WEST
COAST
BASIN
LOS ANGELES FOREBAY
MONTEBELLO FOREBAY
WHITTIER AREA
NON-PRESSURE AREA
PRESSURE AREA
Rio Hondo Spreading Grounds
San Gabriel River Spreading Grounds
West Coast Barrier Project
Dominguez Gap Barrier Project
Alamitos Gap Barrier Project
WRD Office
Newport
Inglewood
Uplift
Baldwin Hills
Dominguez Hills
Signal Hills
Bixby Ranch Hills
Landing Hills
Palos Verdes Hills
Puente Hills
Montebello Hills
BEVERLY HILLS
LOS ANGELES
SANTA MONICA
CULVER CITY
Marina Del Rey
Los Angeles International Airport
INGLEWOOD
EL SEGUNDO
HAWTHORNE
MANHATTAN BEACH
LAWNDALE
GARDENA
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
PALOS VERDES ESTATES
LOMITA
ROLLING HILLS ESTATES
RANCHO PALOS VERDES
ROLLING HILLS
VERNON
MAYWOOD
HUNTINGTON PARK
BELL
CUDAHY
BELL GARDENS
SOUTH GATE
LYNWOOD
COMPTON
PARAMOUNT
BELLFLOWER
DOWNEY
LAKEWOOD
Long Beach Municipal Airport
SIGNAL HILL
LONG BEACH
Long Beach Marina
Los Angeles Harbor
Harbor Lake
SEAL BEACH
HUNTINGTON
CITY OF COMMERCE
MONTEREY PARK
MONTEBELLO
ROSEMEAD
EL MONTE
SOUTH EL MONTE
WEST COVINA
LA PUENTE
CITY OF INDUSTRY
PICO RIVERA
WHITTIER
LA HABRA HEIGHTS
SANTA FE SPRINGS
NORWALK
LA MIRADA
BREA
ARTESIA
CERRITOS
BUENA PARK
FULLERTON
HAWAIIAN GARDENS
CYPRESS
ANAHEIM
LOS ALAMITOS
STANTON
GARDEN GROVE
FOUNTAIN VALLEY
N
S
E
W
2 0 2 4 Miles
2 0 2 4 6 8 Kilometers

Figure 1.1

NESTED WELLS versus PRODUCTION WELLS FOR AQUIFER-SPECIFIC DATA



Production wells are typically perforated across multiple aquifers producing an average water quality. Nested monitoring wells are screened in a portion of a specific aquifer, providing water quality and water level information for the specific zone.

WRD

Figure 1.2

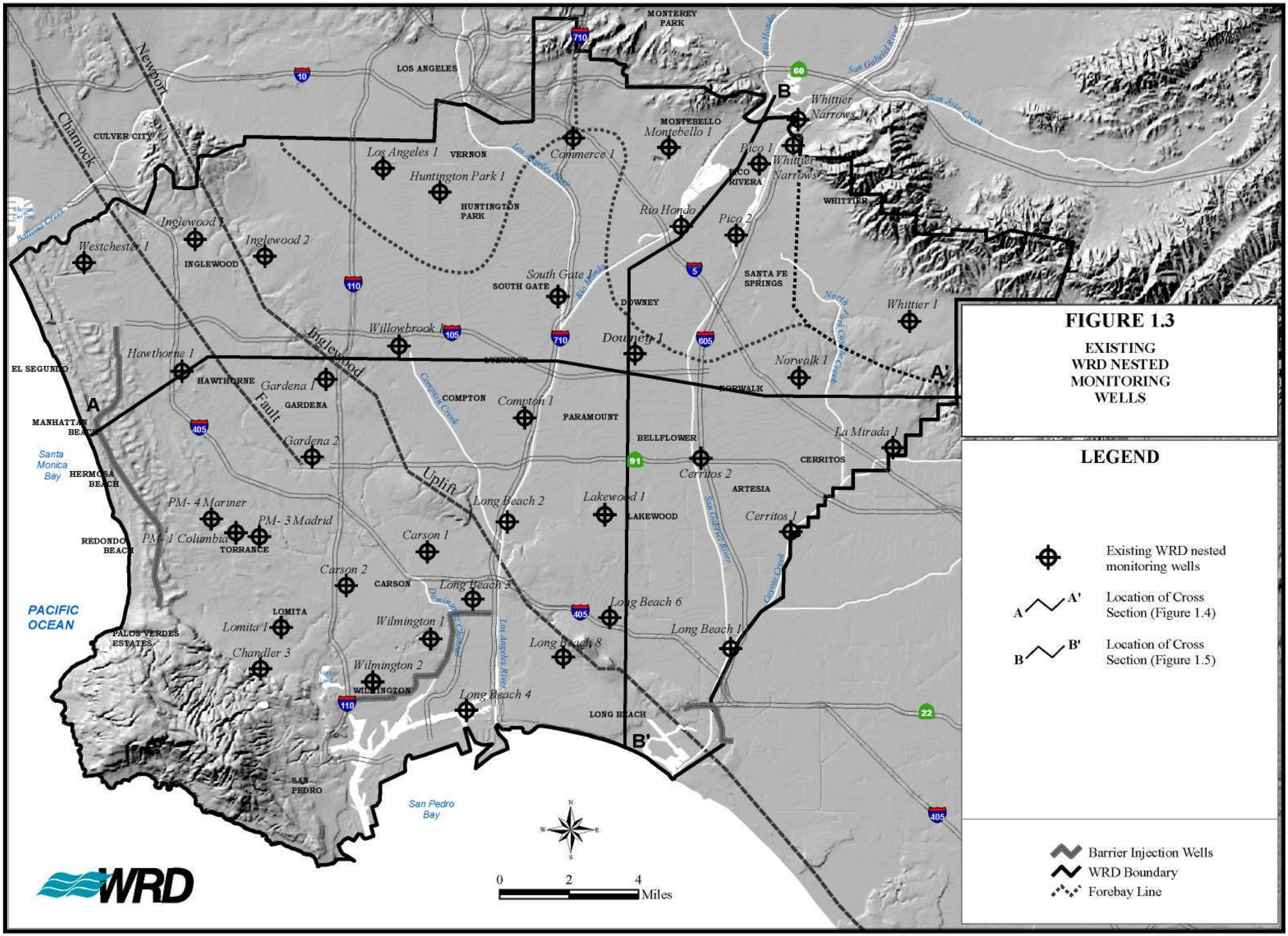
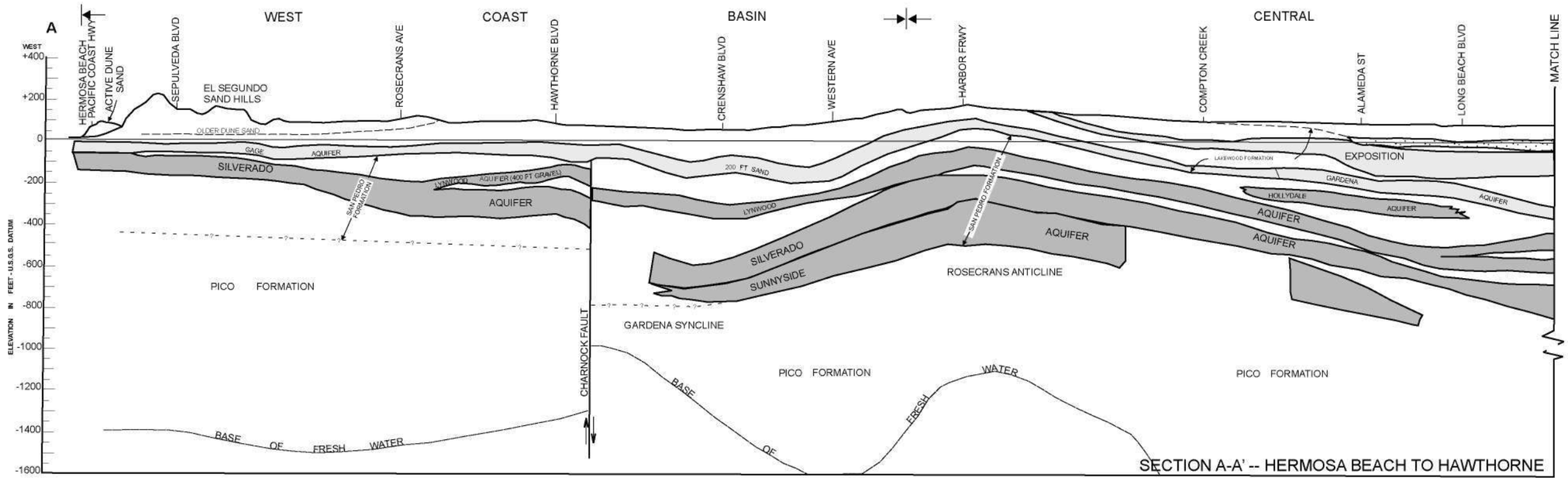
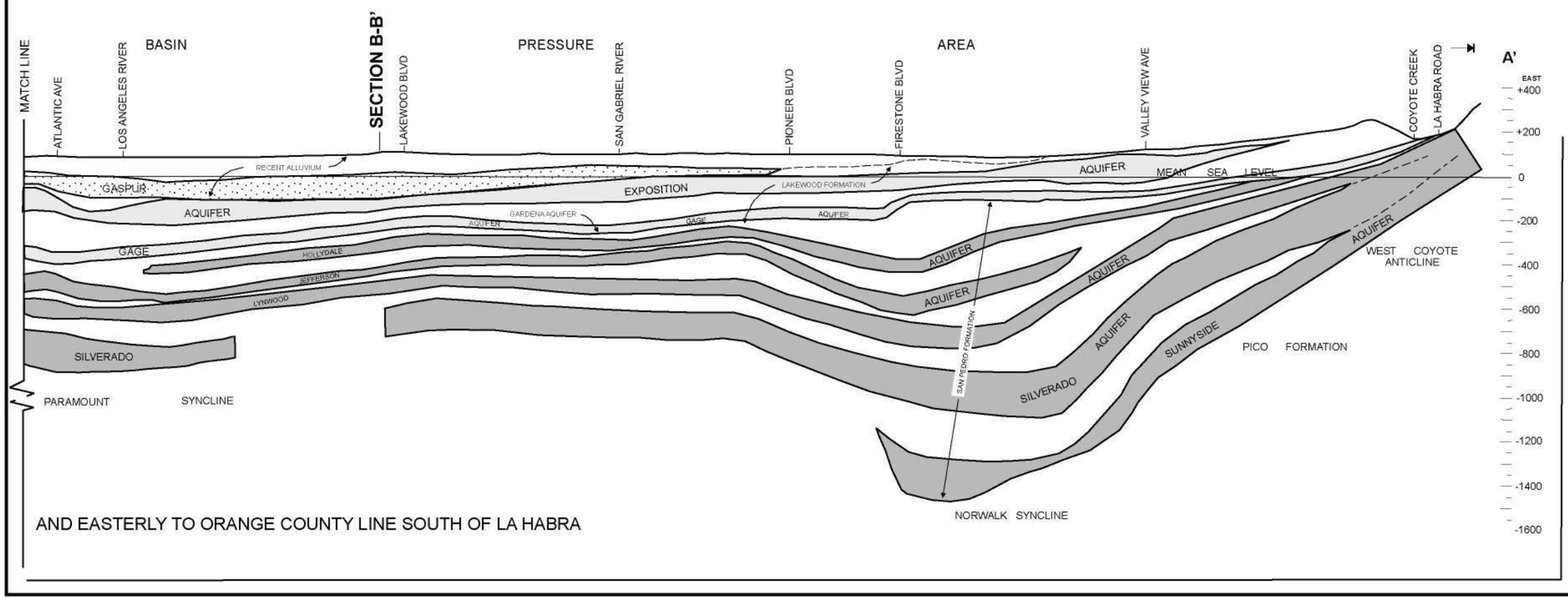


FIGURE 1.3
EXISTING
WRD NESTED
MONITORING
WELLS
LEGEND
Existing WRD nested monitoring wells
Location of Cross Section (Figure 1.4)
Location of Cross Section (Figure 1.5)
Barrier Injection Wells
WRD Boundary
Forebay Line
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Whittier Narrows 2
Rio Hondo
Pico 2
Inglewood 1
Inglewood 2
Westchester 1
South Gate 1
Willowbrook 1
Downey 1
Whittier 1
Norwalk 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
PM- 4 Mariner
PM- 3 Madrid
PM- 1 Columbia
Carson 1
Carson 2
Long Beach 3
Long Beach 6
Long Beach 1
Long Beach 8
Lomita 1
Wilmington 1
Chandler 3
Wilmington 2
Long Beach 4
MONTEREY PARK
LOS ANGELES
CULVER CITY
VERNON
HUNTINGTON PARK
MONTEBELLO
PICO RIVERA
WHITTIER
INGLEWOOD
SOUTH GATE
DOWNEY
SANTA FE SPRINGS
NORWALK
EL SEGUNDO
HAWTHORNE
GARDENA
COMPTON
PARAMOUNT
BELLFLOWER
CERRITOS
ARTESIA
LAKEWOOD
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Newport
Chamock
Inglewood
Fault
Uplift
A
A'
B
B'
0 2 4 Miles
WRD



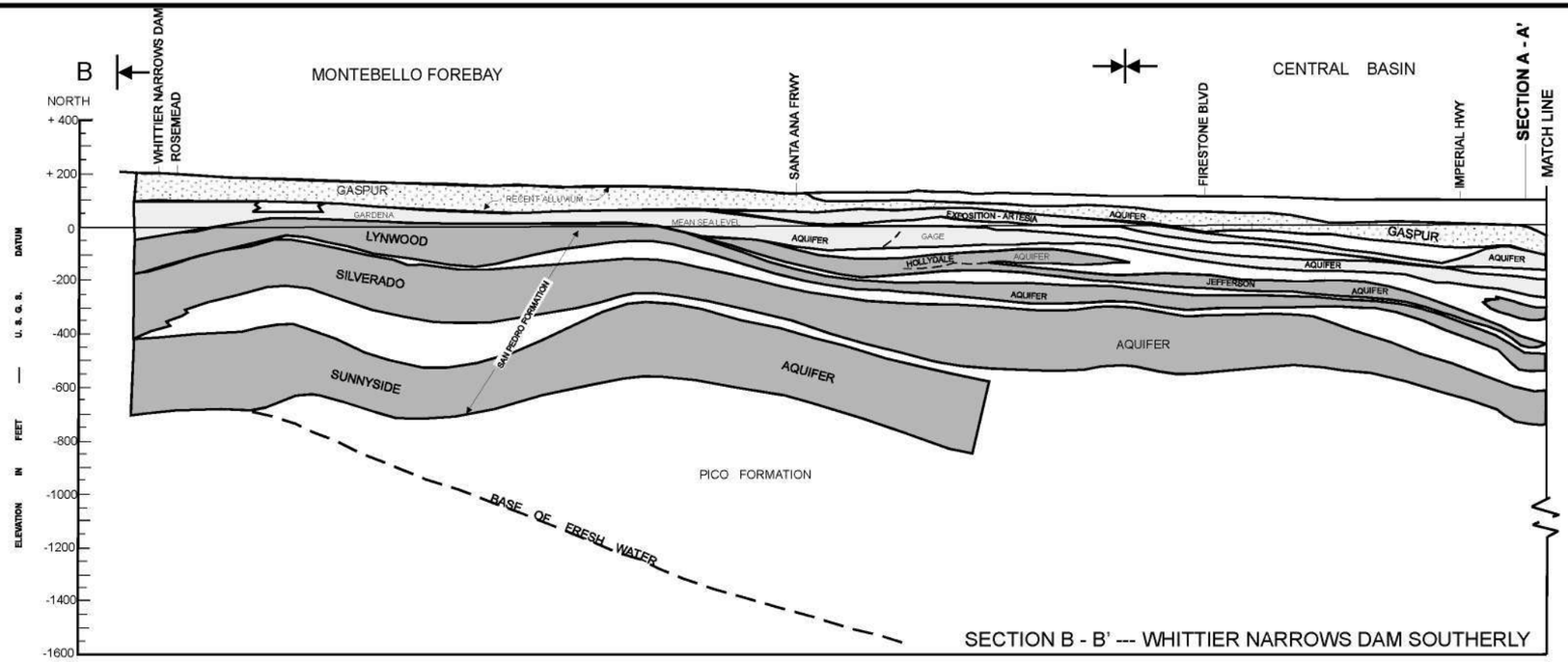


LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATION (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)

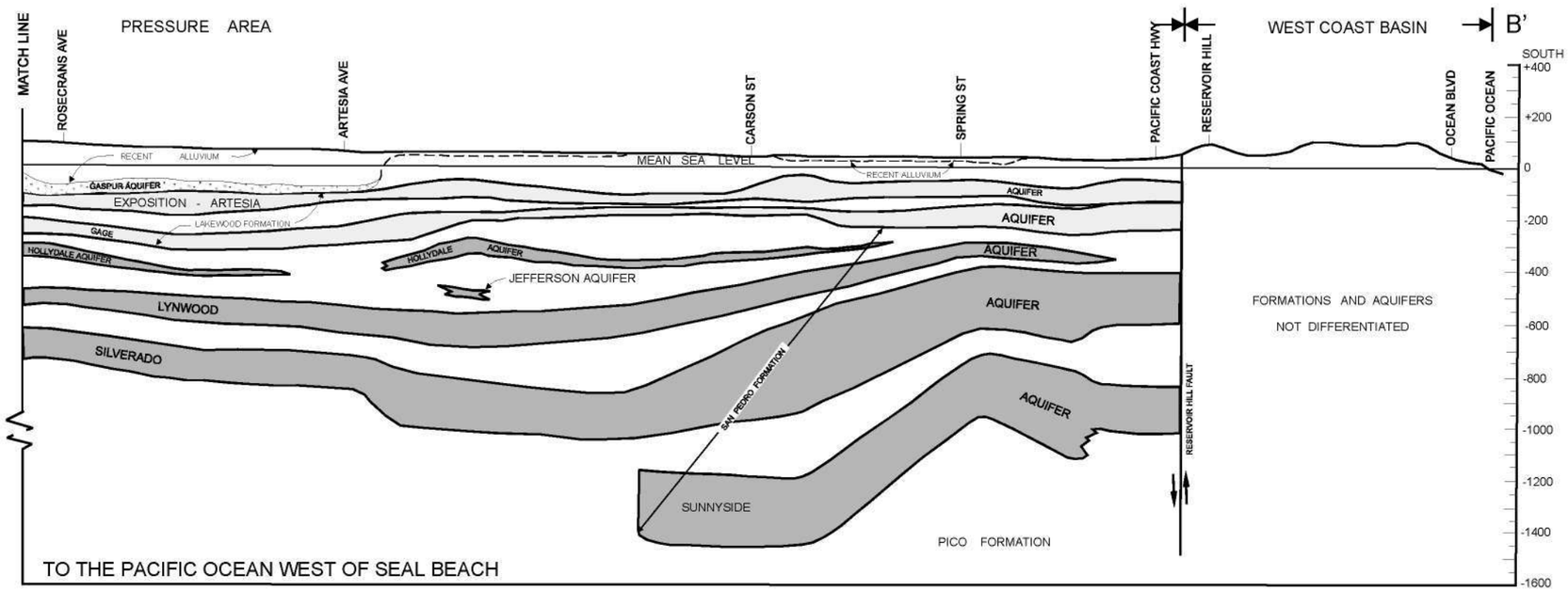
IDEALIZED GEOLOGIC CROSS SECTION AA'
Adapted from
CDWR Bull. 104 App. B

FIGURE 1.4



LEGEND

- AQUICLUDES AND DEEPER UNDIFFERENTIATED FORMATIONS
- AQUIFERS IN RECENT ALLUVIUM (INCLUDES THE GASPUR AND BALLONA AQUIFERS)
- AQUIFERS IN LAKEWOOD FORMATION (INCLUDES THE ARTESIA, EXPOSITION, GAGE, AND GARDENA AQUIFERS)
- AQUIFERS IN THE SAN PEDRO FORMATIO (INCLUDES THE HOLLYDALE, JEFFERSON, LYNWOOD, SILVERADO AND SUNNYSIDE AQUIFERS)



IDEALIZED GEOLOGIC CROSS SECTION BB'
Adapted from
CDWR Bull. 104 App. B

FIGURE 1.5

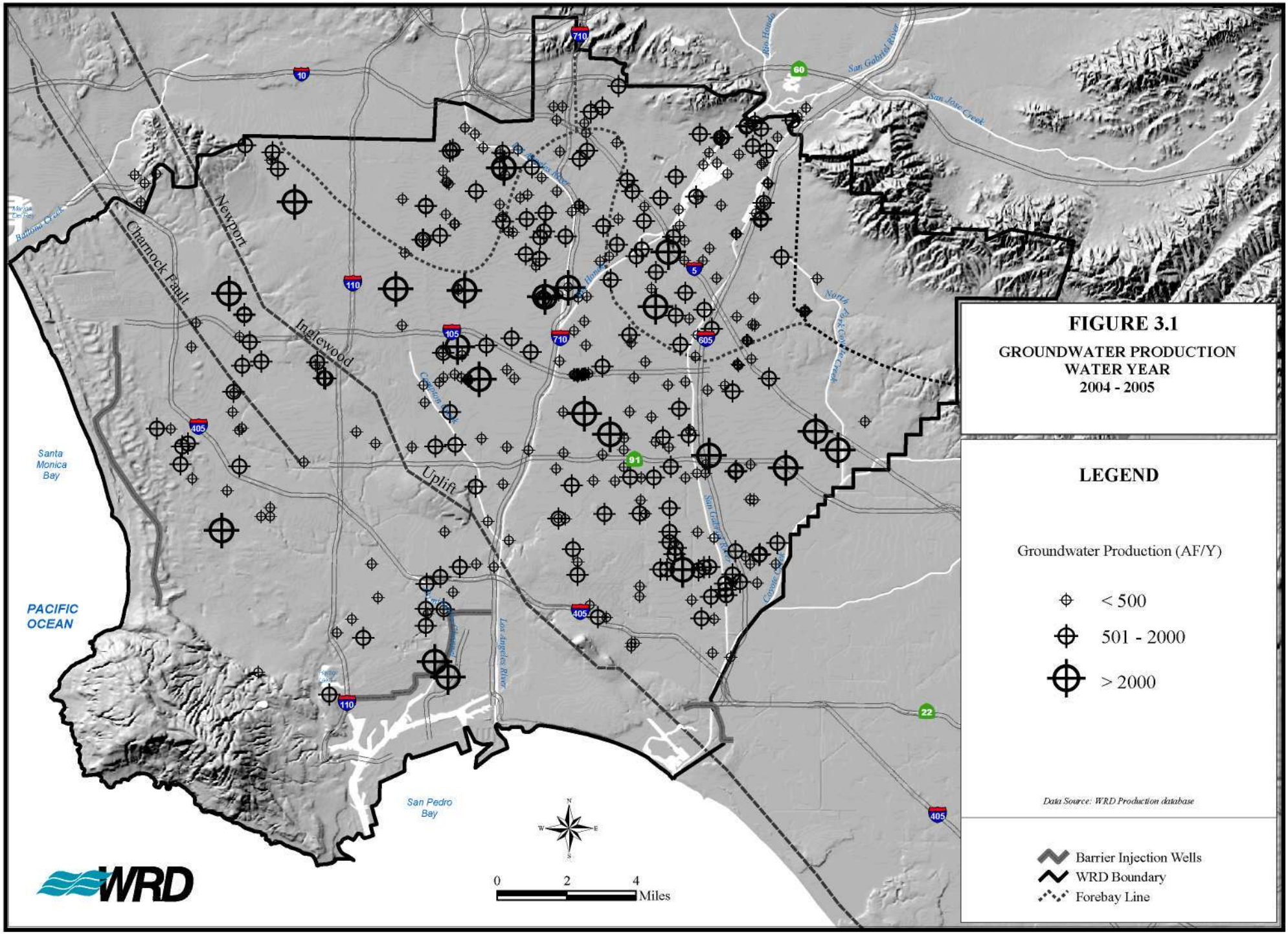


FIGURE 3.1
GROUNDWATER PRODUCTION
WATER YEAR
2004 - 2005
LEGEND
Groundwater Production (AF/Y)
< 500
501 - 2000
> 2000
Data Source: WRD Production database
Barrier Injection Wells
WRD Boundary
Forebay Line
Newport
Inglewood
Charnock Fault
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Rio Hondo
Ballona Creek
0
2
4
Miles
WRD

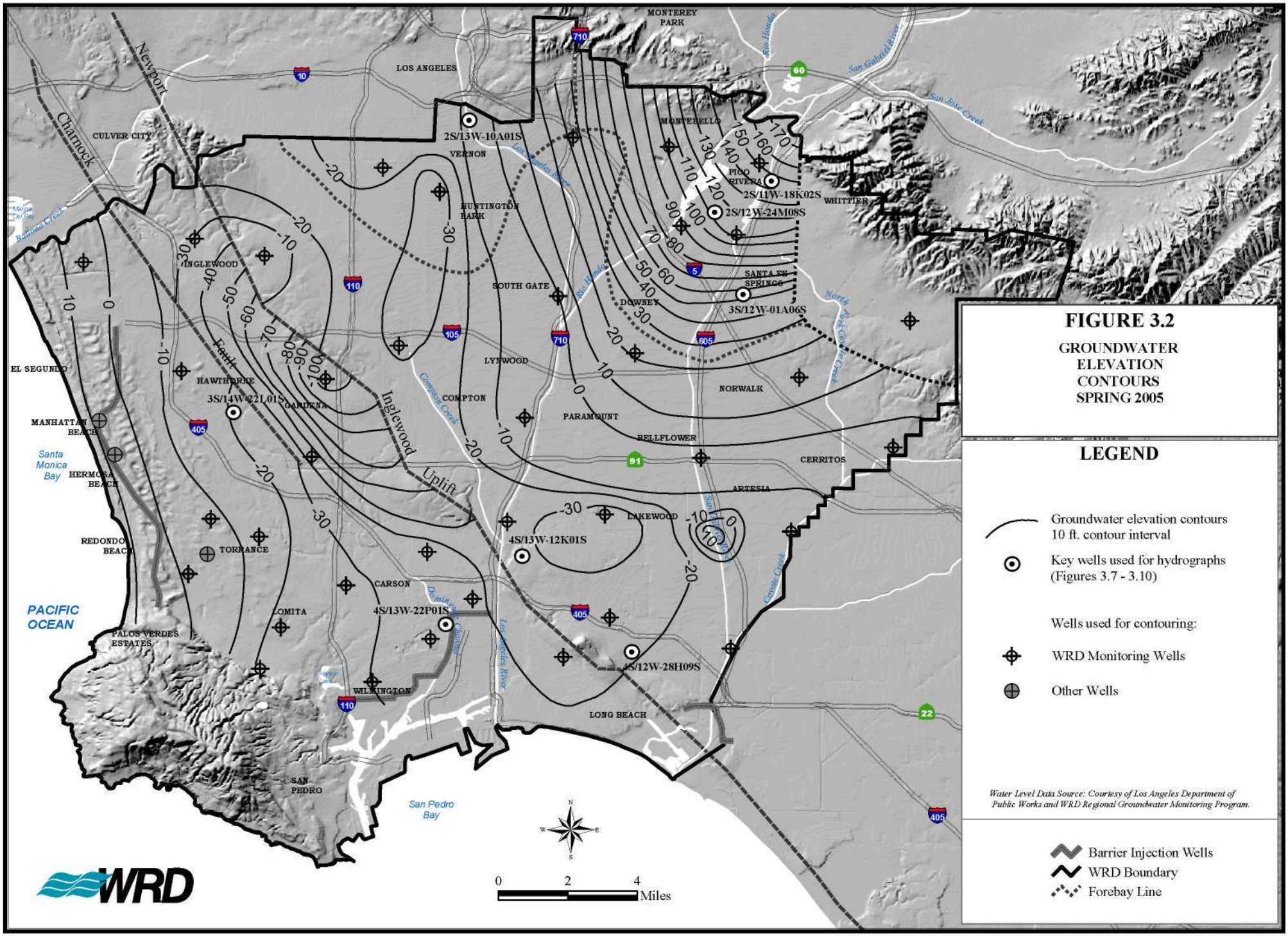


FIGURE 3.2
GROUNDWATER ELEVATION CONTOURS SPRING 2005
LEGEND
Groundwater elevation contours 10 ft. contour interval
Key wells used for hydrographs (Figures 3.7 - 3.10)
Wells used for contouring:
WRD Monitoring Wells
Other Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay Line
2S/13W-10A01S
2S/11W-18K02S
2S/12W-24M08S
3S/12W-01A06S
3S/14W-22L01S
4S/13W-12K01S
4S/13W-22P01S
4S/12W-28H09S
LOS ANGELES
MONTEREY PARK
MONTEBELLO
PICO RIVERA
WHITTIER
SANTA FE SPRINGS
DOWNEY
SOUTH GATE
HUNTINGTON PARK
VERNON
CULVER CITY
INGLEWOOD
LYNWOOD
COMPTON
NORWALK
PARAMOUNT
BELLFLOWER
CERRITOS
ARTESIA
LAKEWOOD
HAWTHORNE
GARDENA
EL SEGUNDO
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Newport
Charnock
Inglewood
Uplift
Fault
Los Angeles River
San Gabriel River
San Jose Creek
Coyote Creek
Compton Creek
North Fork Coyote Creek
Dominguez Channel
Ballona Creek
Rio Hondo
0 2 4 Miles
WRD

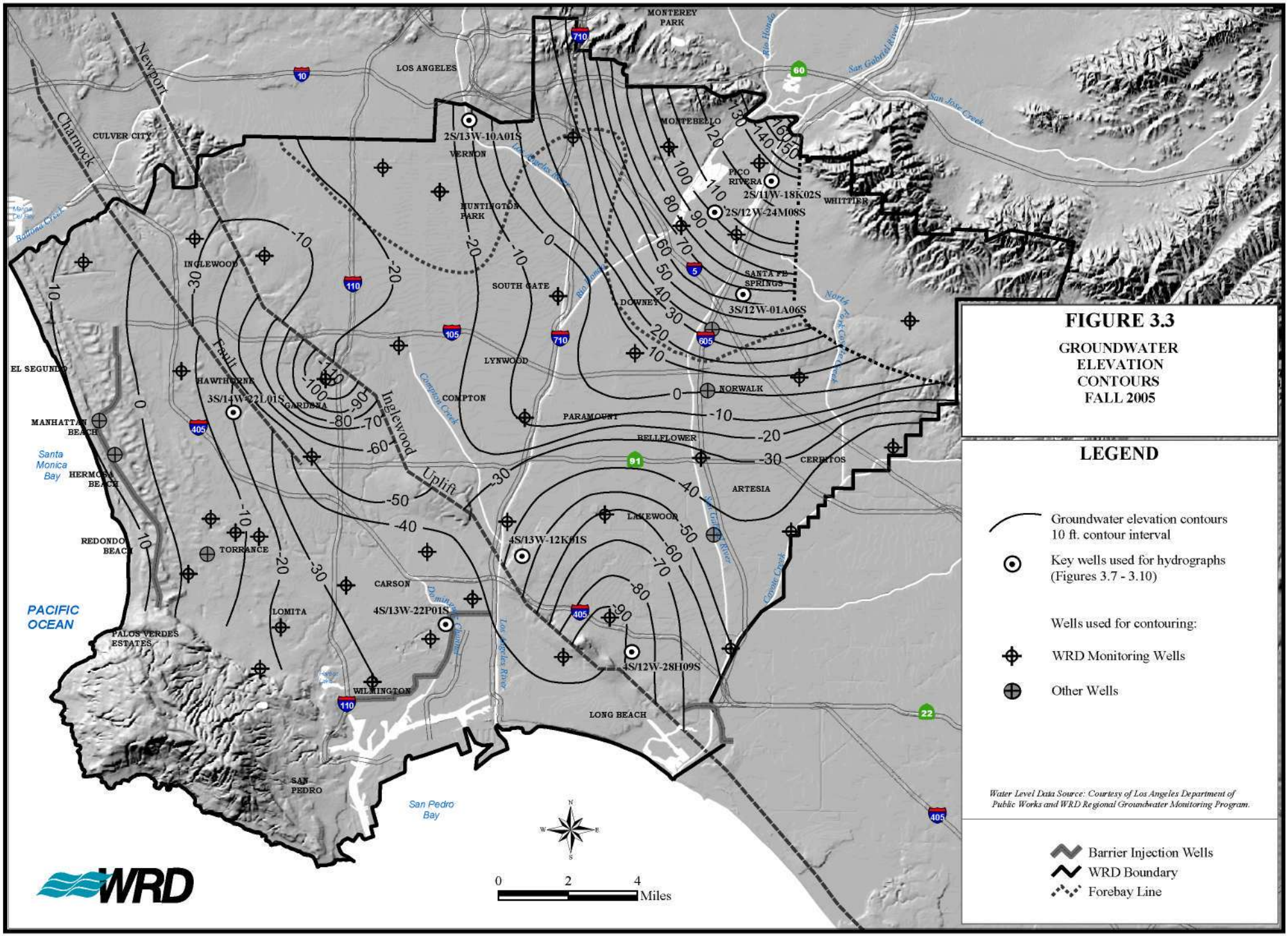


FIGURE 3.3
GROUNDWATER ELEVATION CONTOURS FALL 2005
LEGEND
Groundwater elevation contours 10 ft. contour interval
Key wells used for hydrographs (Figures 3.7 - 3.10)
Wells used for contouring:
WRD Monitoring Wells
Other Wells
Water Level Data Source: Courtesy of Los Angeles Department of Public Works and WRD Regional Groundwater Monitoring Program.
Barrier Injection Wells
WRD Boundary
Forebay Line
2S/13W-10A01S
2S/11W-18K02S
2S/12W-24M08S
3S/12W-01A06S
3S/14W-22L01S
4S/13W-12K01S
4S/13W-22P01S
4S/12W-28H09S
LOS ANGELES
MONTEREY PARK
MONTEBELLO
PICO RIVERA
WHITTIER
VERNON
HUNTINGTON PARK
CULVER CITY
INGLEWOOD
SOUTH GATE
DOWNEY
SANTA FE SPRINGS
NORWALK
LYNWOOD
COMPTON
PARAMOUNT
BELLFLOWER
CERRITOS
ARTESIA
LAKEWOOD
EL SEGUNDO
HAWTHORNE
GARDENA
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
Newport
Charnock
Fault
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Rio Hondo
San Gabriel River
San Jose Creek
Los Angeles River
Coyote Creek
Compton Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
N
S
E
W

Monthly Groundwater Production
Water Year 2004-2005

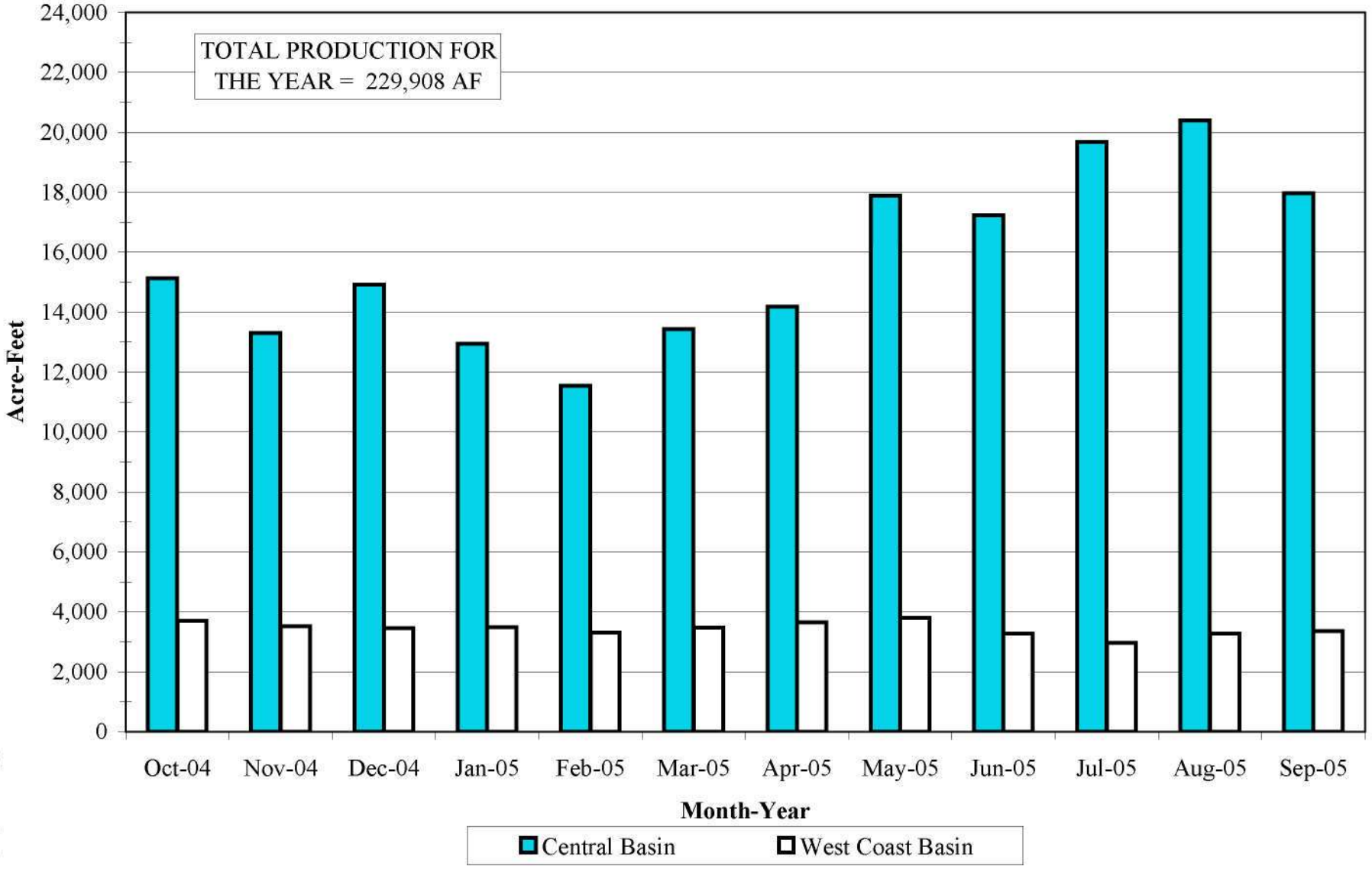


Figure 3.4

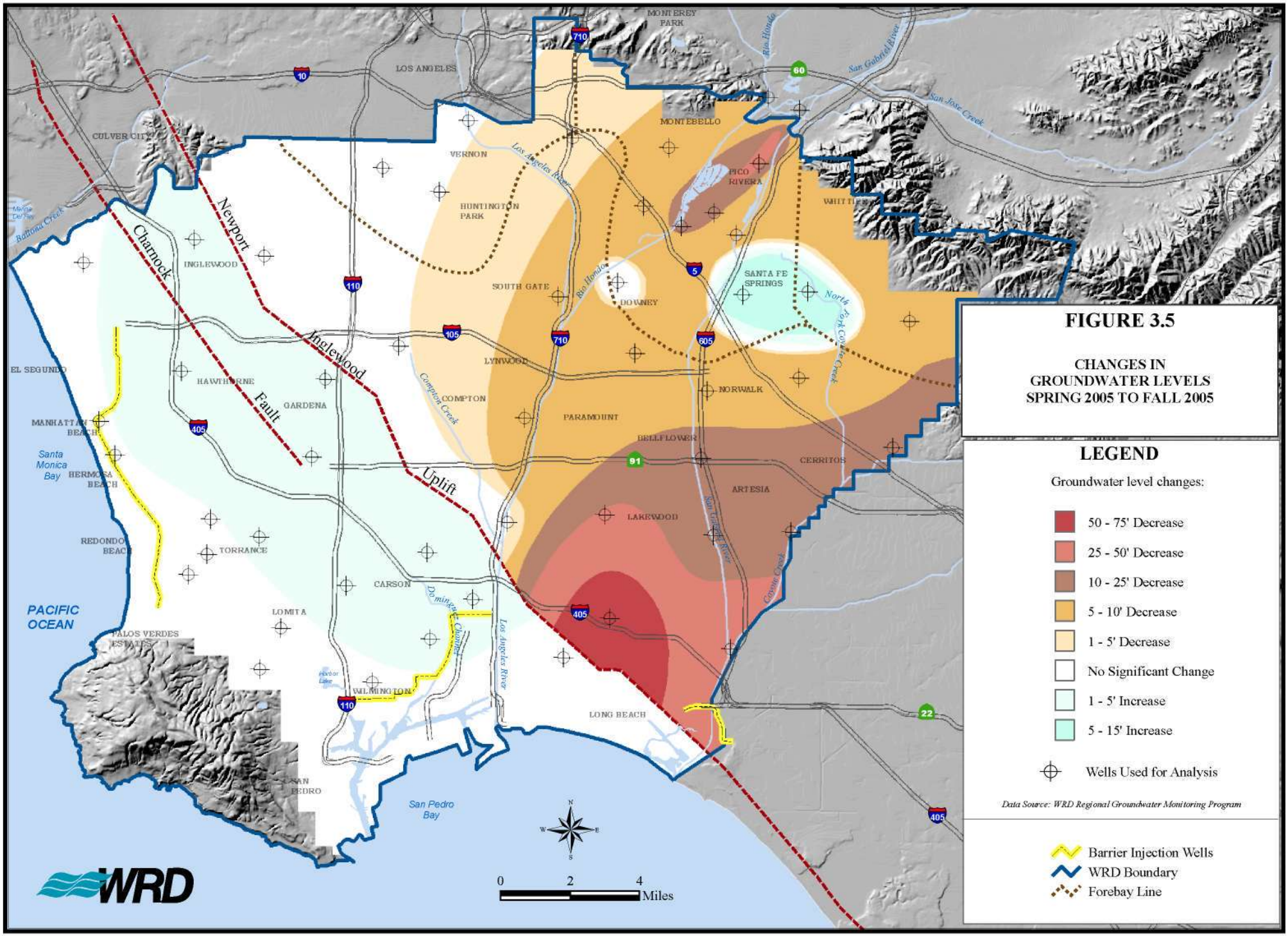


FIGURE 3.5
CHANGES IN GROUNDWATER LEVELS SPRING 2005 TO FALL 2005
LEGEND
Groundwater level changes:
50 - 75' Decrease
25 - 50' Decrease
10 - 25' Decrease
5 - 10' Decrease
1 - 5' Decrease
No Significant Change
1 - 5' Increase
5 - 15' Increase
Wells Used for Analysis
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay Line
Newport
Charnock
Inglewood
Fault
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
LOS ANGELES
CULVER CITY
MONTEREY PARK
MONTEBELLO
VERNON
HUNTINGTON PARK
PICO RIVERA
WHITTIER
INGLEWOOD
SOUTH GATE
DOWNEY
SANTA FE SPRINGS
LYNWOOD
COMPTON
PARAMOUNT
NORWALK
BELLFLOWER
CERRITOS
ARTESIA
LAKEWOOD
EL SEGUNDO
HAWTHORNE
GARDENA
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
Malaga Cove
Palos Verdes Peninsula
0 2 4 Miles
WRD

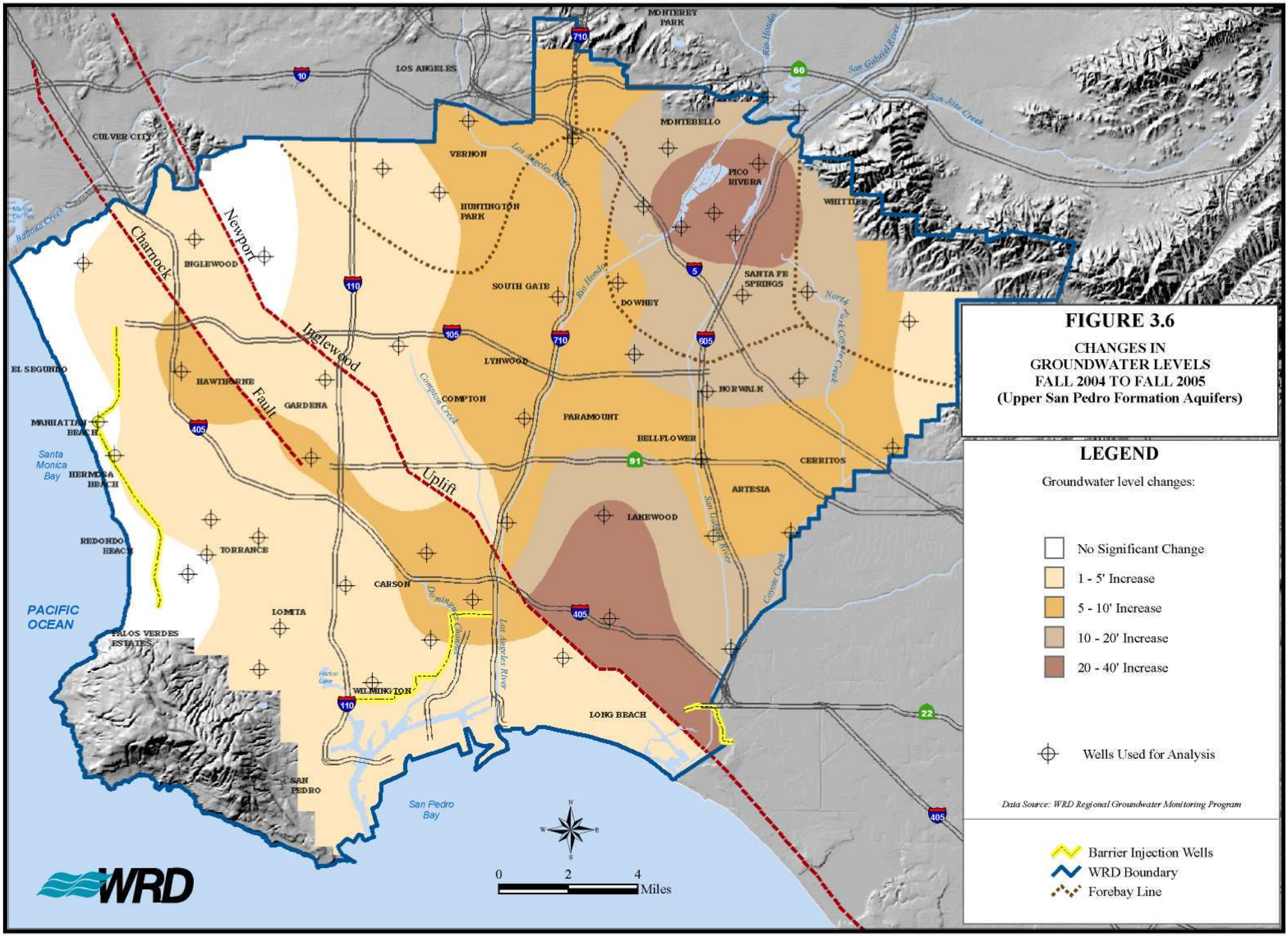
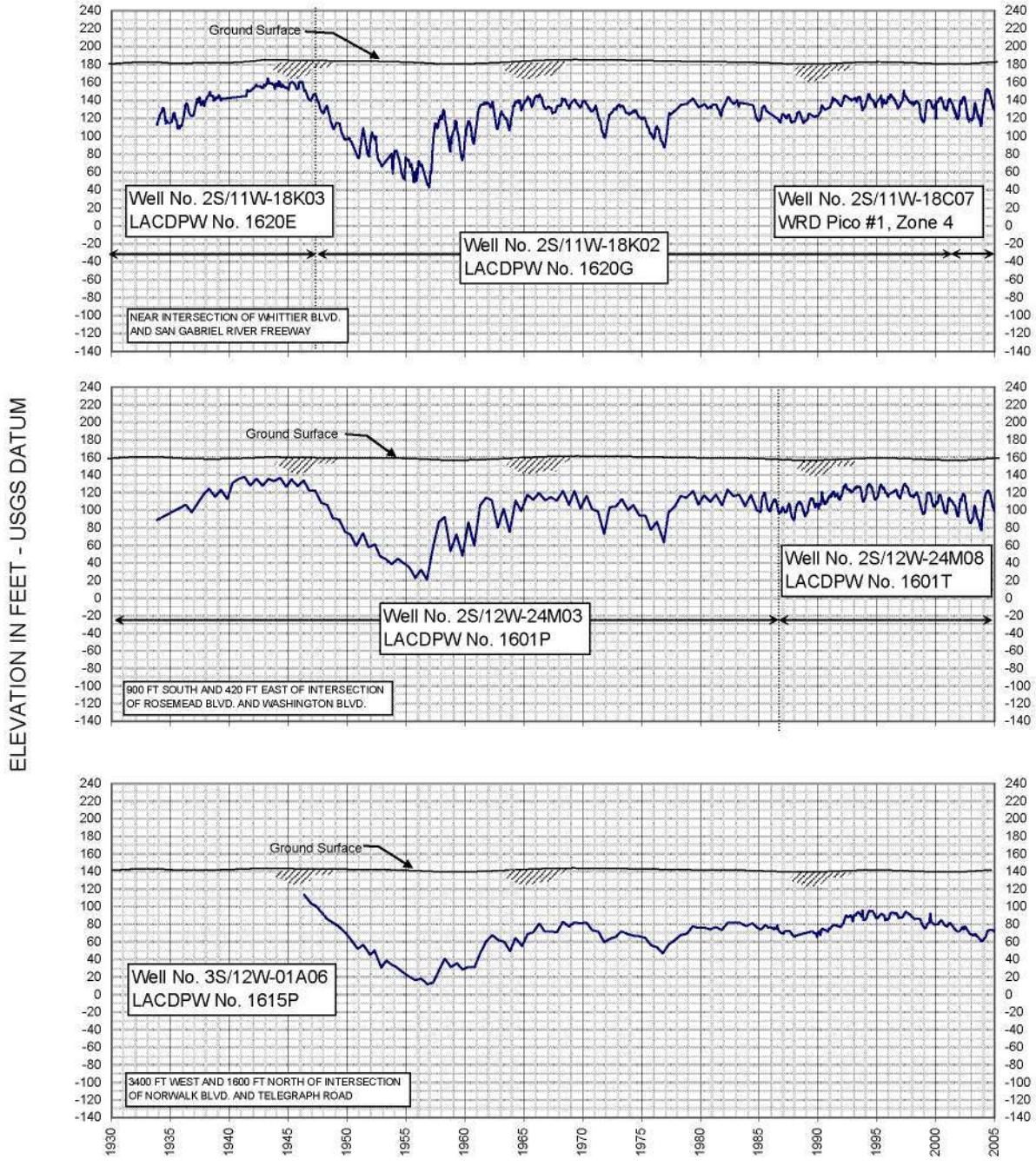
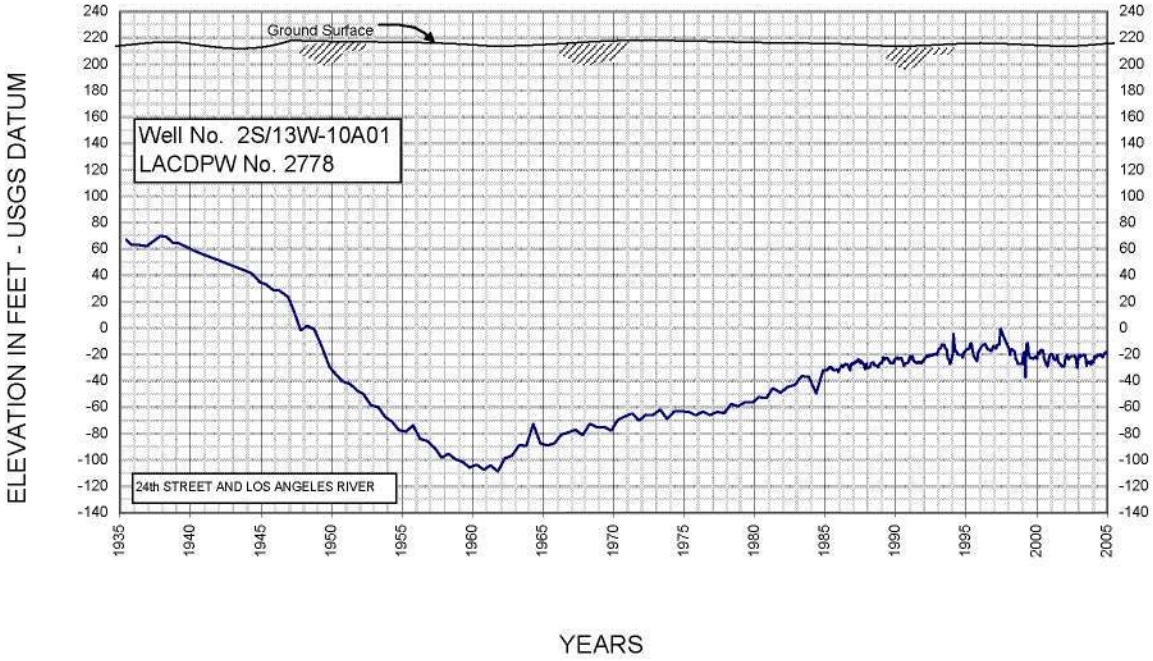


FIGURE 3.6
CHANGES IN
GROUNDWATER LEVELS
FALL 2004 TO FALL 2005
(Upper San Pedro Formation Aquifers)
LEGEND
Groundwater level changes:
No Significant Change
1 - 5' Increase
5 - 10' Increase
10 - 20' Increase
20 - 40' Increase
Wells Used for Analysis
Data Source: WRD Regional Groundwater Monitoring Program
Barrier Injection Wells
WRD Boundary
Forebay Line
MONTEREY PARK
LOS ANGELES
CULVER CITY
VERNON
MONTEBELLO
PICO RIVERA
WHITTIER
HUNTINGTON PARK
INGLEWOOD
SOUTH GATE
DOWNEY
SANTA FE SPRINGS
LYNWOOD
NORWALK
EL SEGUNDO
HAWTHORNE
GARDENA
COMPTON
PARAMOUNT
BELLFLOWER
CERRITOS
MANHATTAN BEACH
HERMOSA BEACH
ARTESIA
LAKEWOOD
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Newport
Charnock
Inglewood
Fault
Uplift
Rio Hondo
San Gabriel River
San Jose Creek
Los Angeles River
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
Harbor Lake
Malaga Cove
Ballona Creek
0
2
4
Miles
WRD



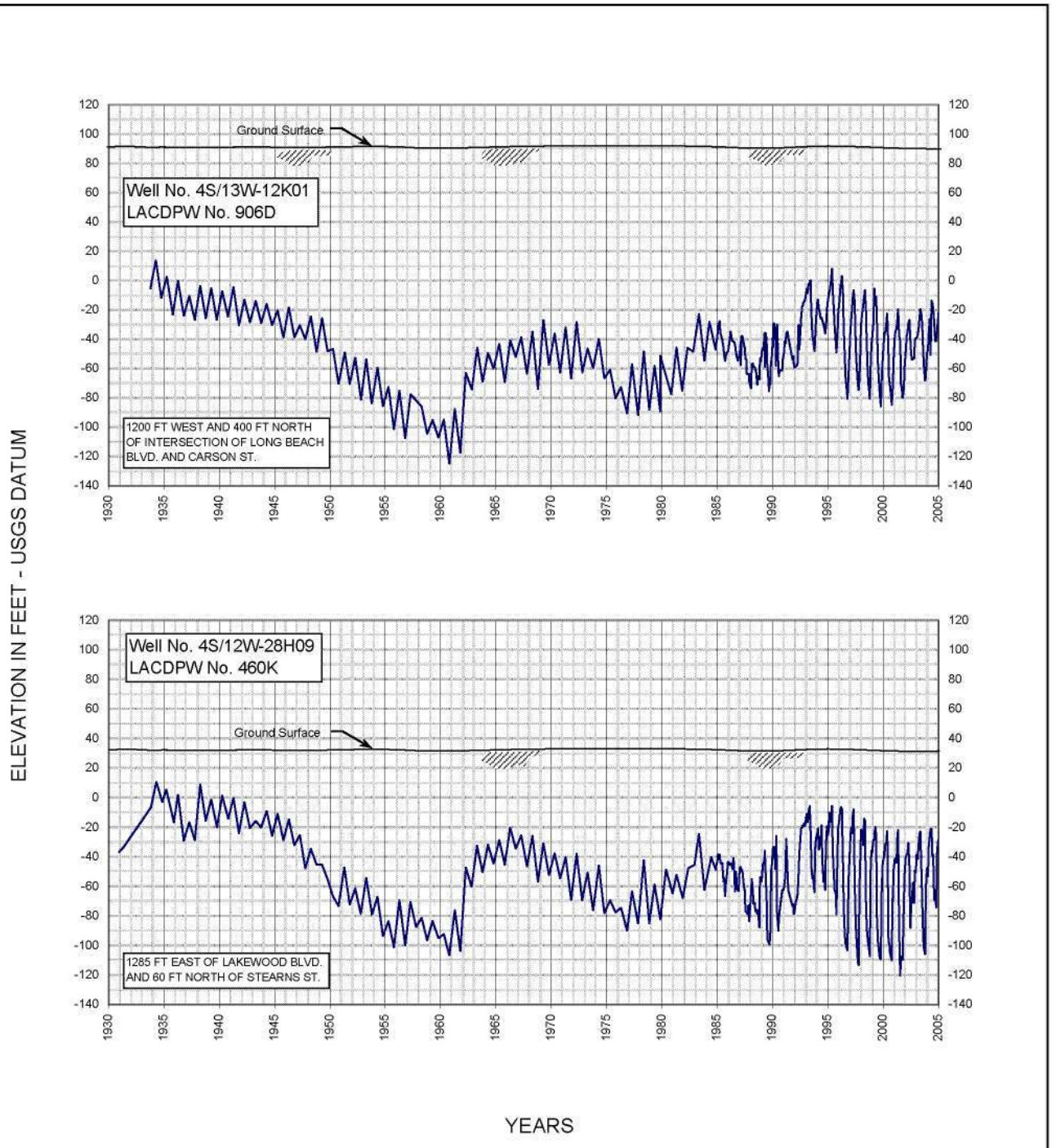
FLUCTUATIONS OF WATER LEVEL AT WELLS
MONTEBELLO FOREBAY

Figure 3.7



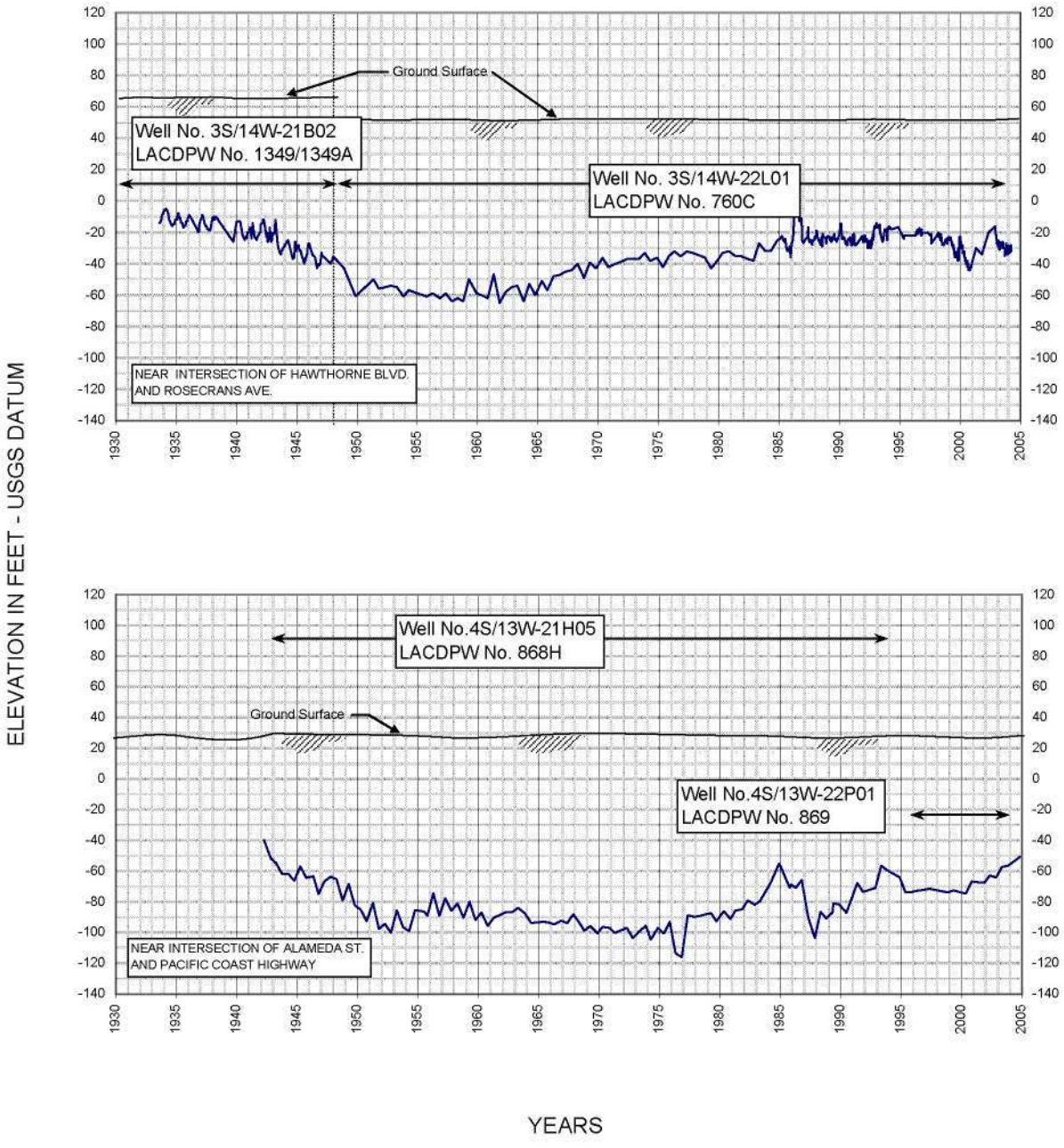
FLUCTUATIONS OF WATER LEVEL AT WELLS
LOS ANGELES FOREBAY

Figure 3.8



FLUCTUATIONS OF WATER LEVEL AT WELLS
CENTRAL BASIN PRESSURE AREA

Figure 3.9



FLUCTUATIONS OF WATER LEVEL AT WELLS
WEST BASIN

Figure 3.10

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL RIO HONDO #1

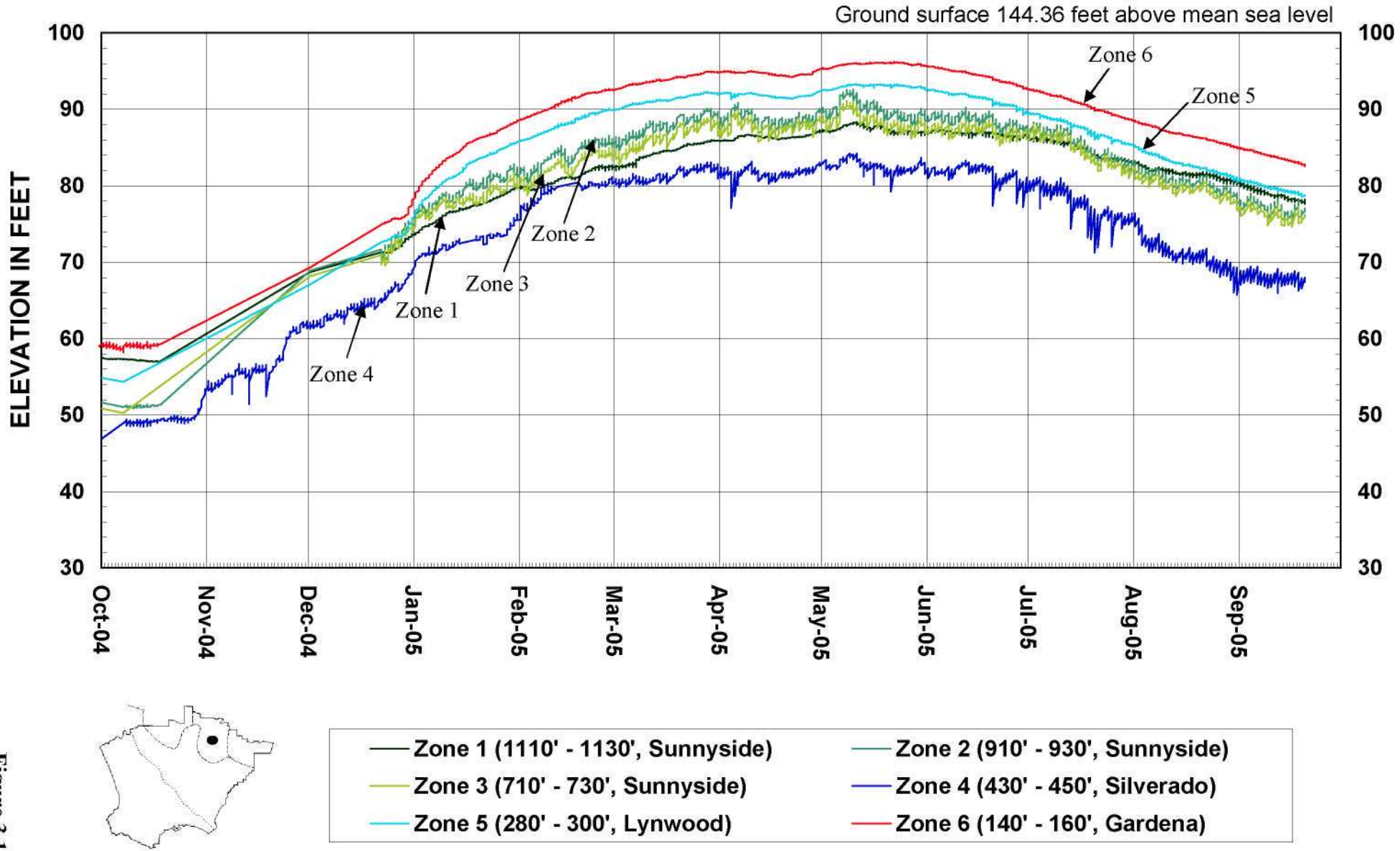


Figure 3.11

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL HUNTINGTON PARK #1

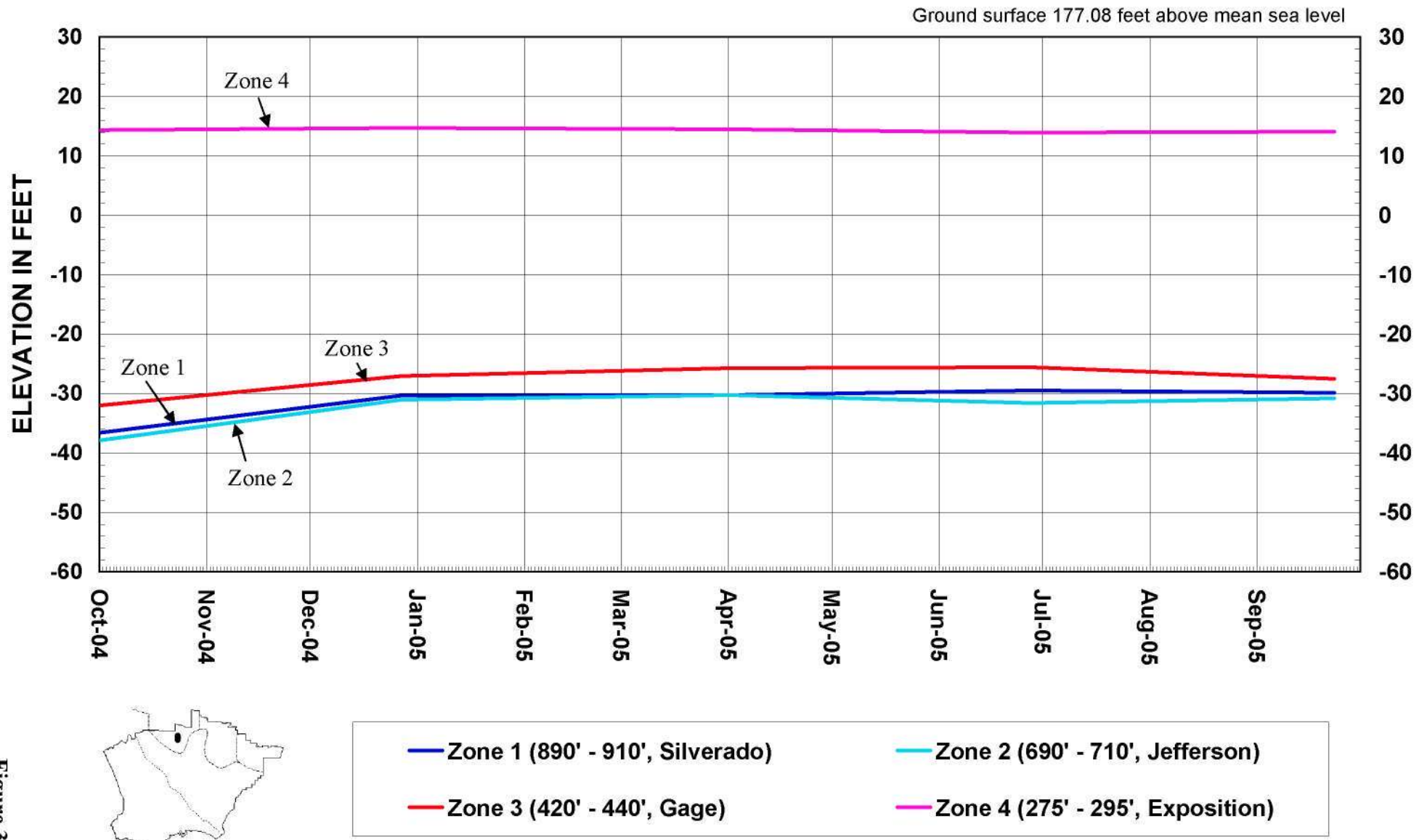


Figure 3.12

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL LONG BEACH #1

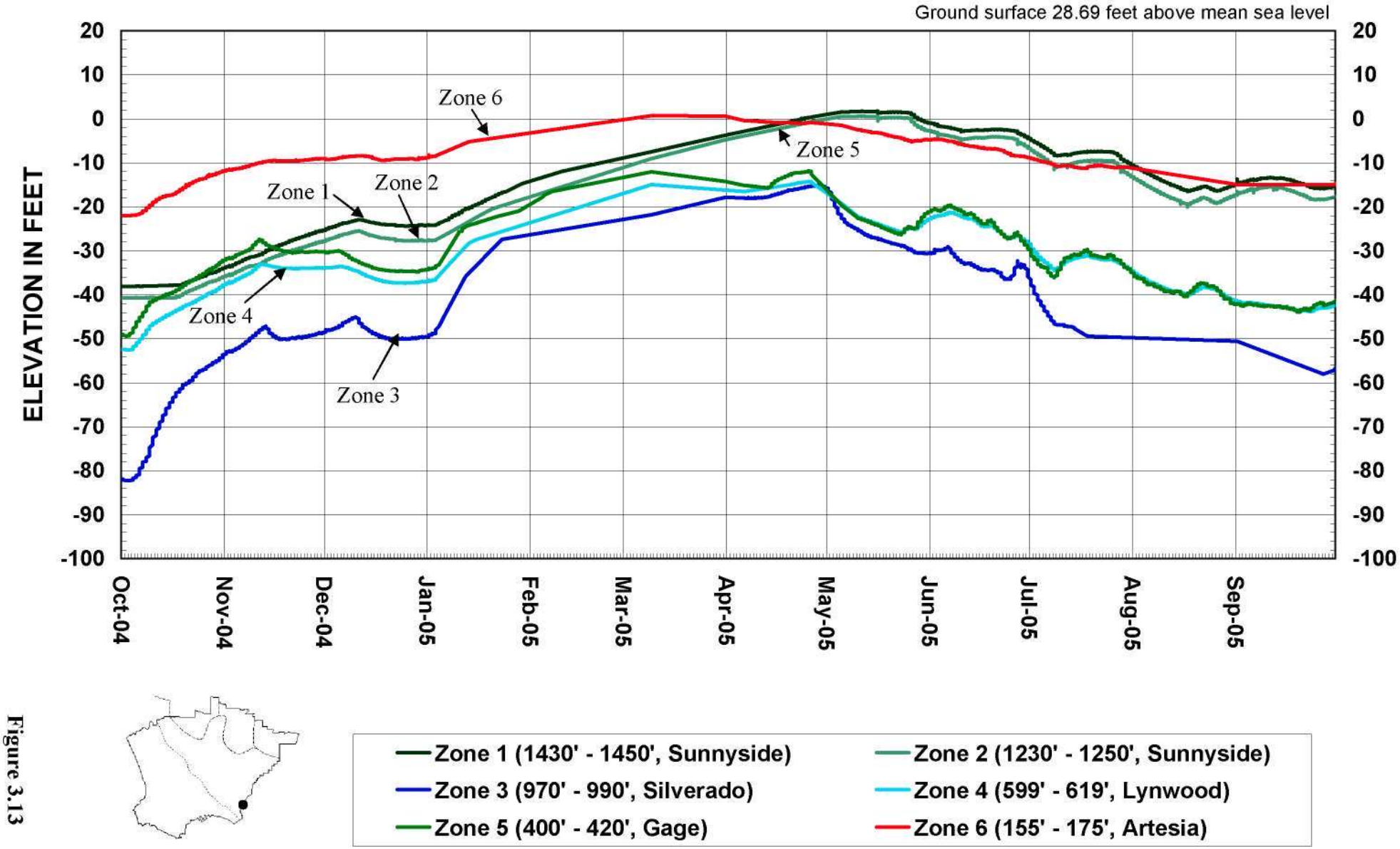


Figure 3.13

FLUCTUATIONS OF WATER LEVELS IN WRD NESTED MONITORING WELL CARSON #1

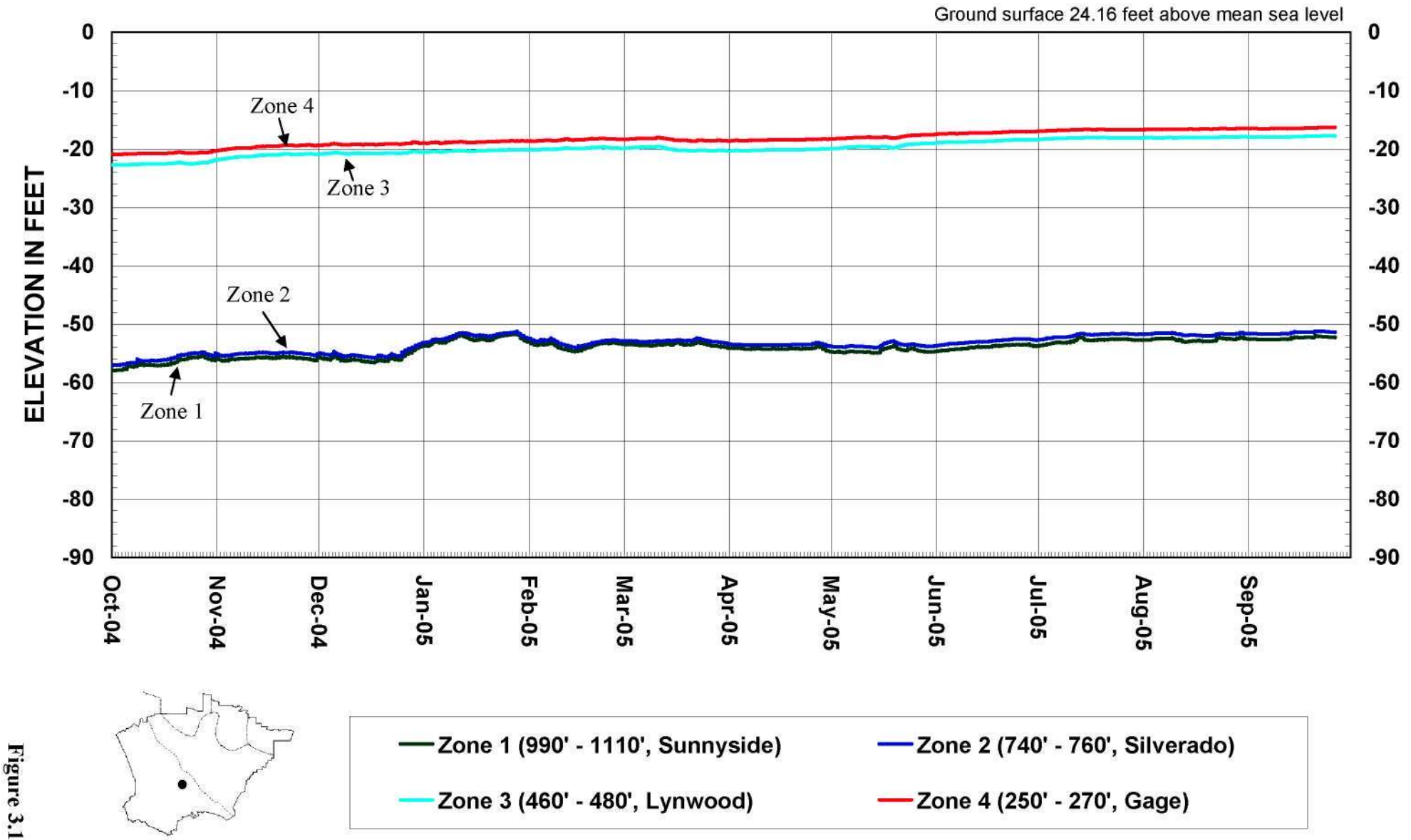


Figure 3.14

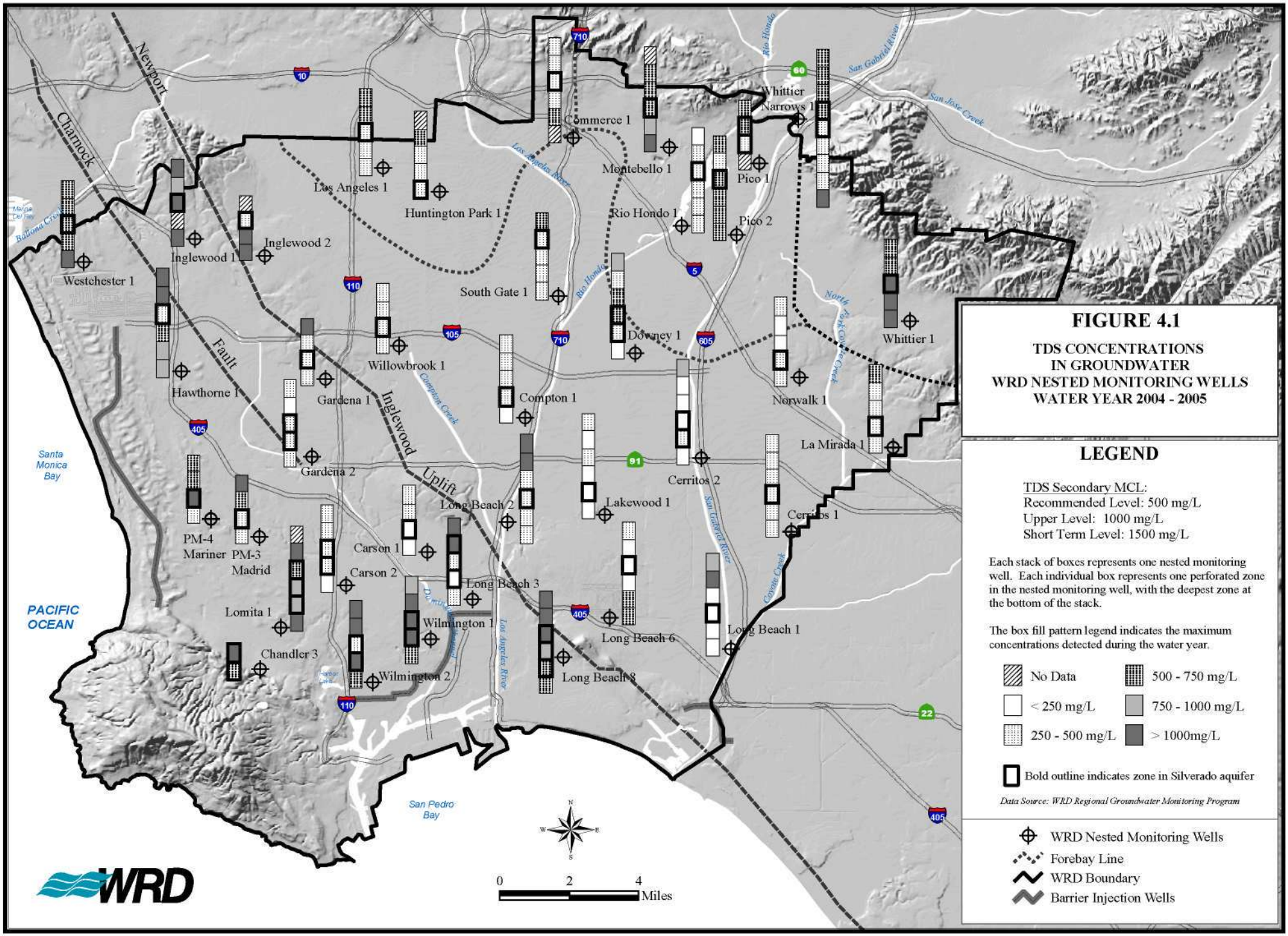


FIGURE 4.1

TDS CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2004 - 2005

LEGEND

TDS Secondary MCL:
Recommended Level: 500 mg/L
Upper Level: 1000 mg/L
Short Term Level: 1500 mg/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- < 250 mg/L
- 250 - 500 mg/L
- 500 - 750 mg/L
- 750 - 1000 mg/L
- > 1000mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- WRD Nested Monitoring Wells
- Forebay Line
- WRD Boundary
- Barrier Injection Wells

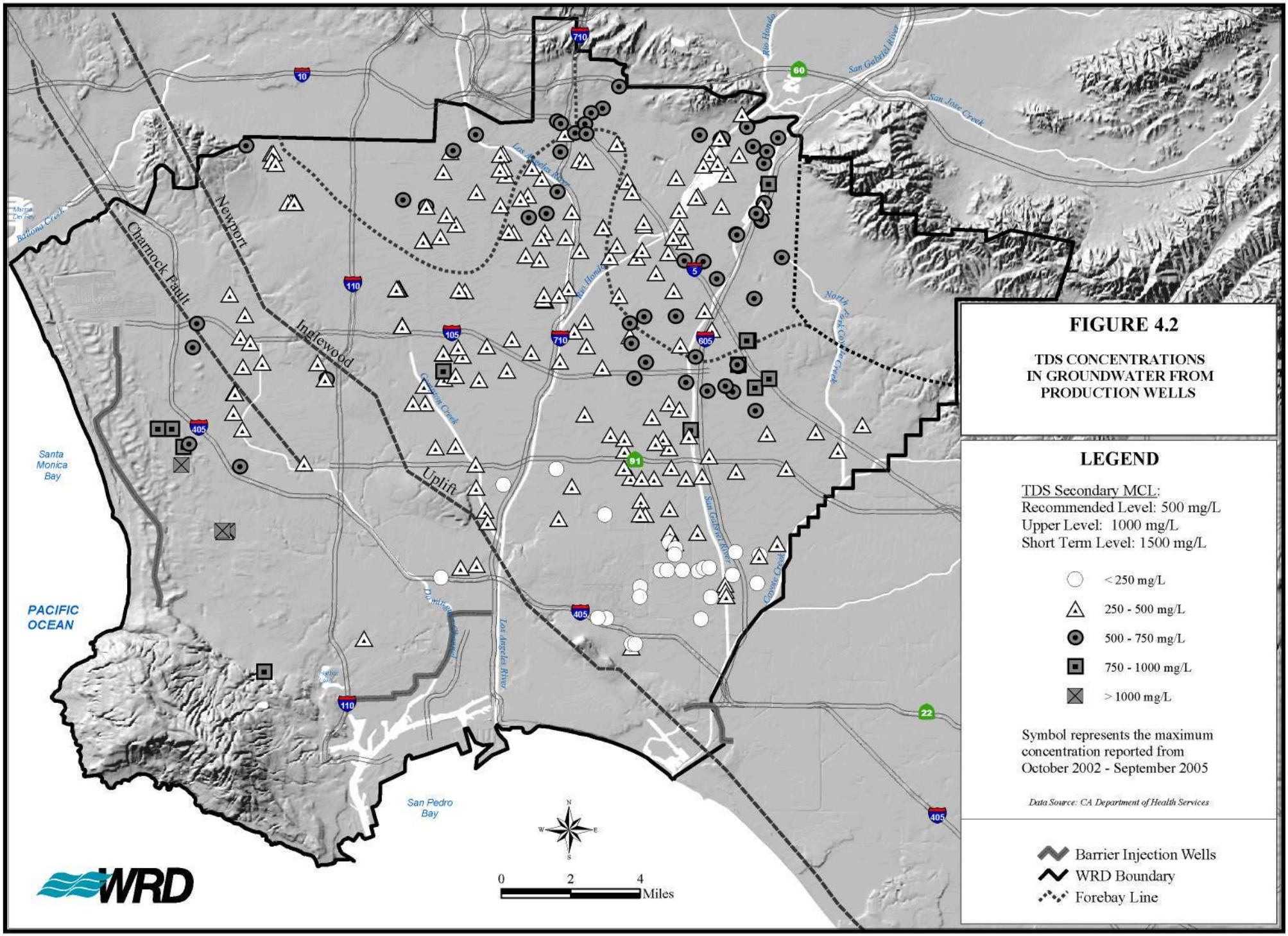
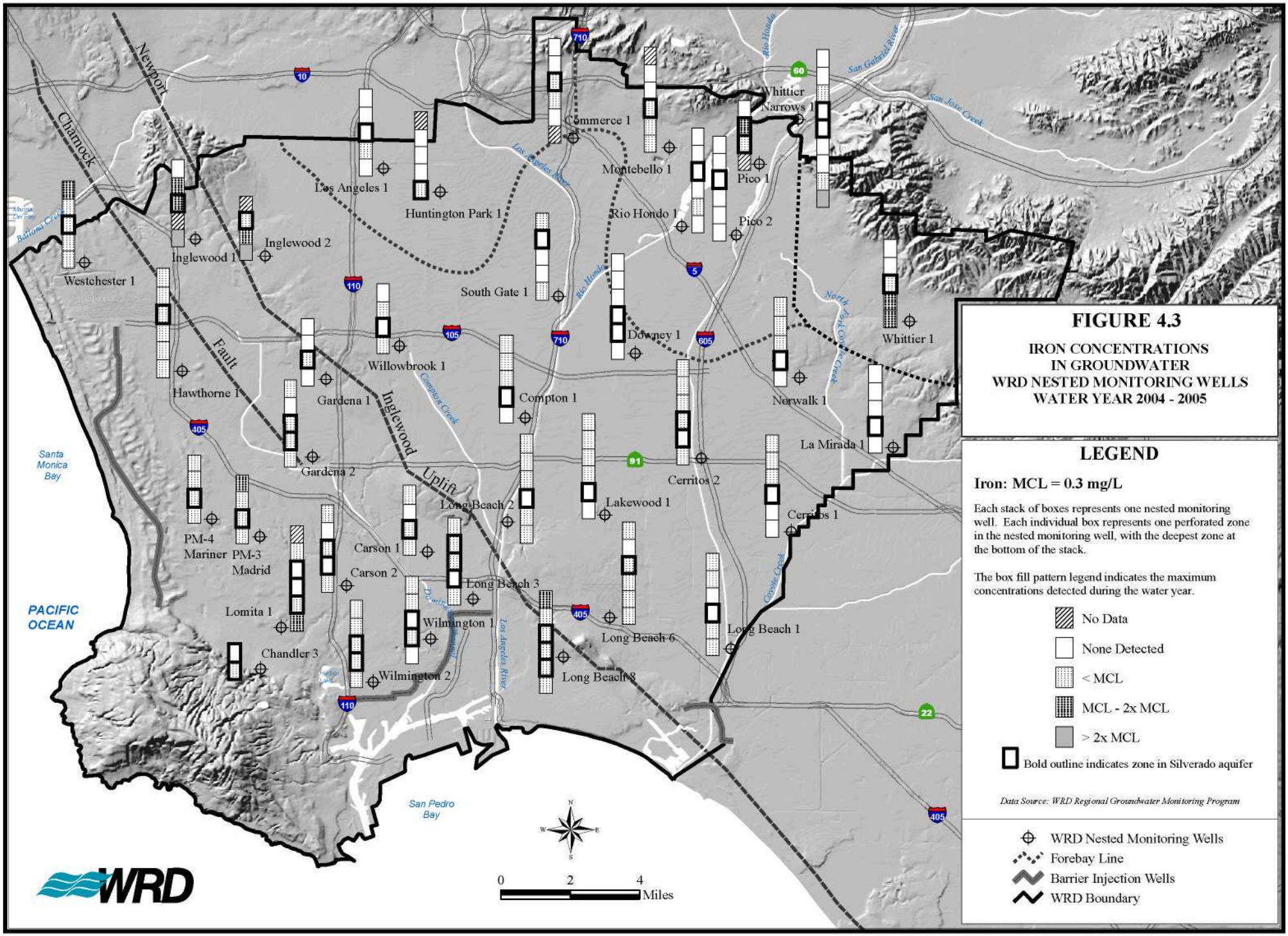


FIGURE 4.2
TDS CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TDS Secondary MCL:
Recommended Level: 500 mg/L
Upper Level: 1000 mg/L
Short Term Level: 1500 mg/L
< 250 mg/L
250 - 500 mg/L
500 - 750 mg/L
750 - 1000 mg/L
> 1000 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
Coyote Creek
Compton Creek
Bolsa Chica
0 2 4 Miles
WRD


Newport
Chamock
Fault
Inglewood
Uplift
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Westchester 1
Inglewood 1
Inglewood 2
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
South Gate 1
Downey 1
Whittier 1
Hawthorne 1
Willowbrook 1
Gardena 1
Gardena 2
Compton 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
PM-4 Mariner
PM-3 Madrid
Carson 1
Carson 2
Long Beach 3
Lomita 1
Wilmington 1
Long Beach 6
Long Beach 1
Chandler 3
Wilmington 2
Long Beach 8
0 2 4 Miles
N
W
E
S
WRD
FIGURE 4.3
IRON CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Iron: MCL = 0.3 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Forebay Line
Barrier Injection Wells
WRD Boundary

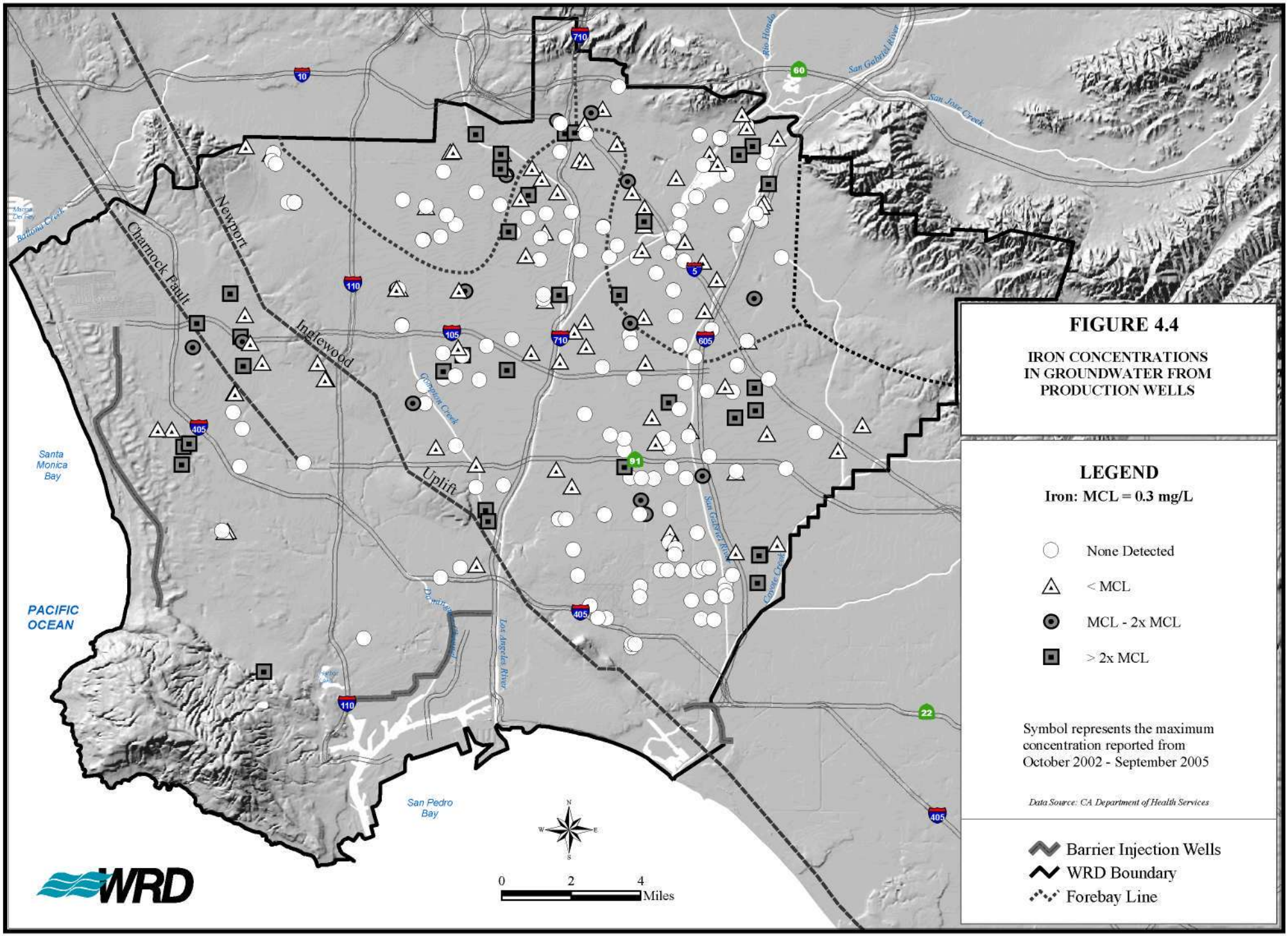


FIGURE 4.4
IRON CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Iron: MCL = 0.3 mg/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Coyote Creek
Bolsa Chica
Rio Hondo
0 2 4 Miles
WRD

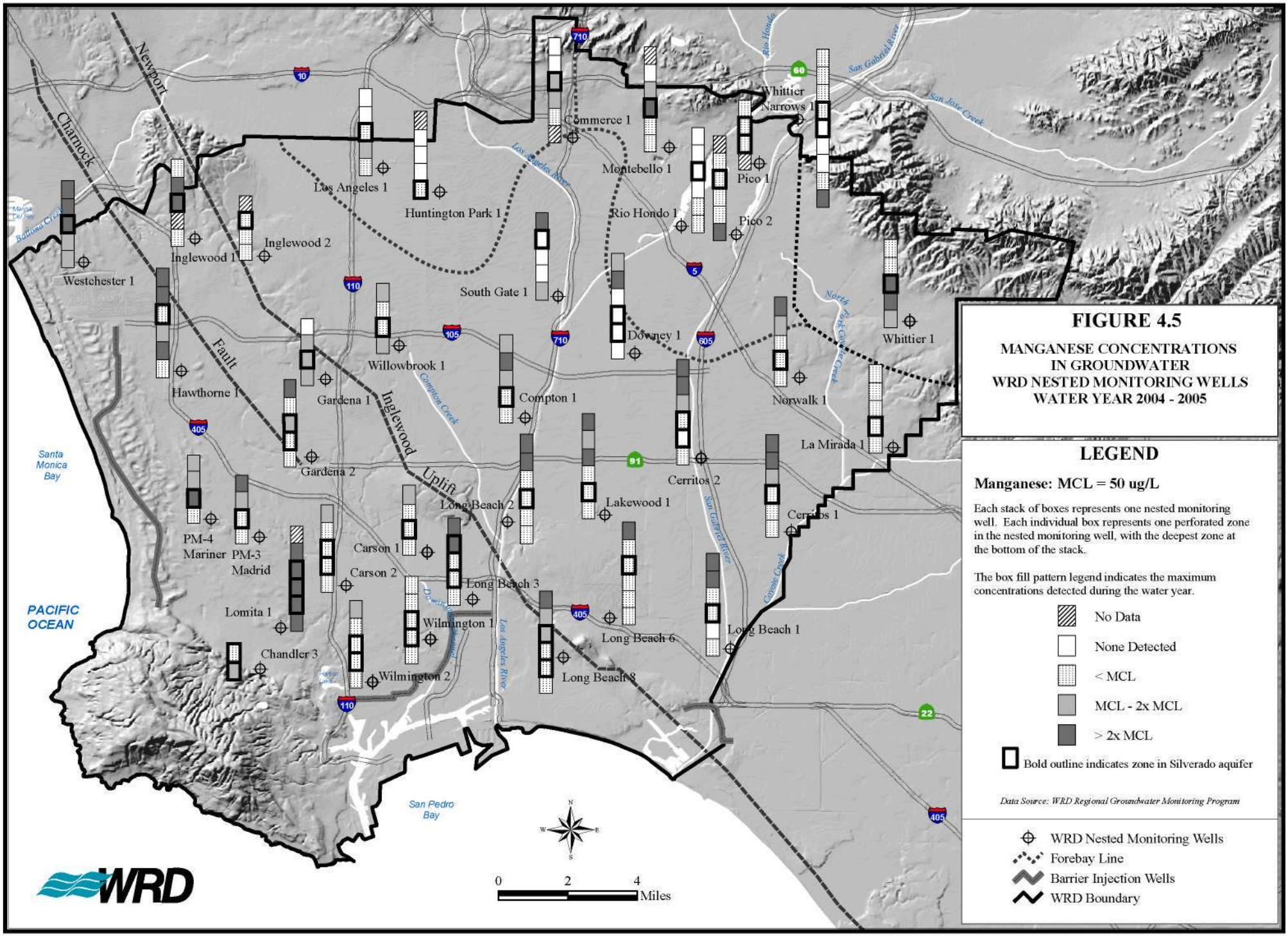


FIGURE 4.5

MANGANESE CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2004 - 2005

LEGEND

Manganese: MCL = 50 ug/L

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- None Detected
- < MCL
- MCL - 2x MCL
- > 2x MCL

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- WRD Nested Monitoring Wells
- Forebay Line
- Barrier Injection Wells
- WRD Boundary

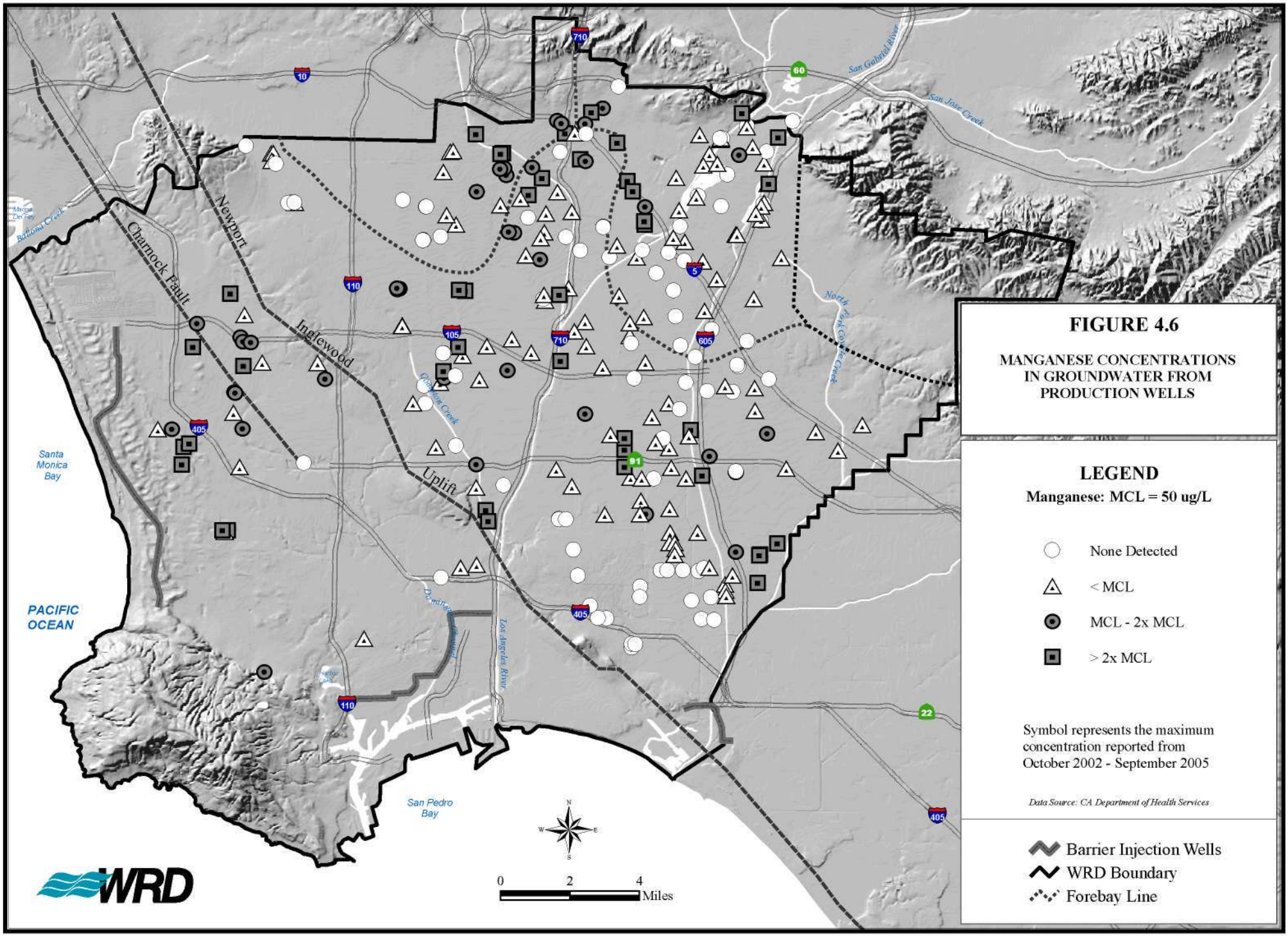
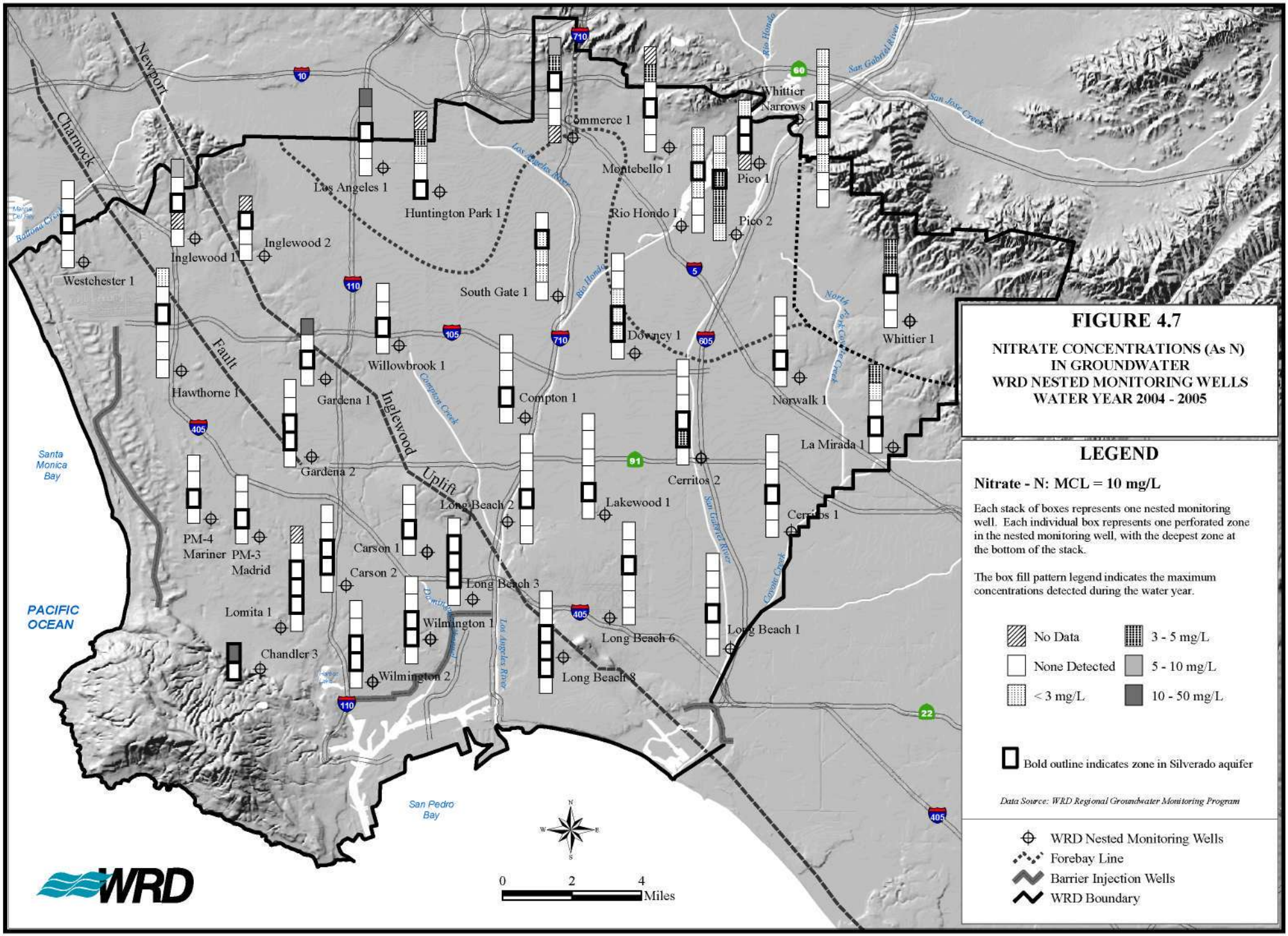


FIGURE 4.6
MANGANESE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Manganese: MCL = 50 ug/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
North Fork Coyote Creek
Centinela Creek
Ballona Creek
WRD
0 2 4 Miles


Newport
Charnock
Fault
Inglewood
Uplift
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Willowbrook 1
Los Angeles 1
Huntington Park 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Compton 1
Whittier Narrows 1
Pico 1
Pico 2
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Chandler 3
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
Malaga Cove
Bathtub Creek
0 2 4 Miles
WRD
FIGURE 4.7
NITRATE CONCENTRATIONS (As N)
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Nitrate - N: MCL = 10 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< 3 mg/L
3 - 5 mg/L
5 - 10 mg/L
10 - 50 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Forebay Line
Barrier Injection Wells
WRD Boundary

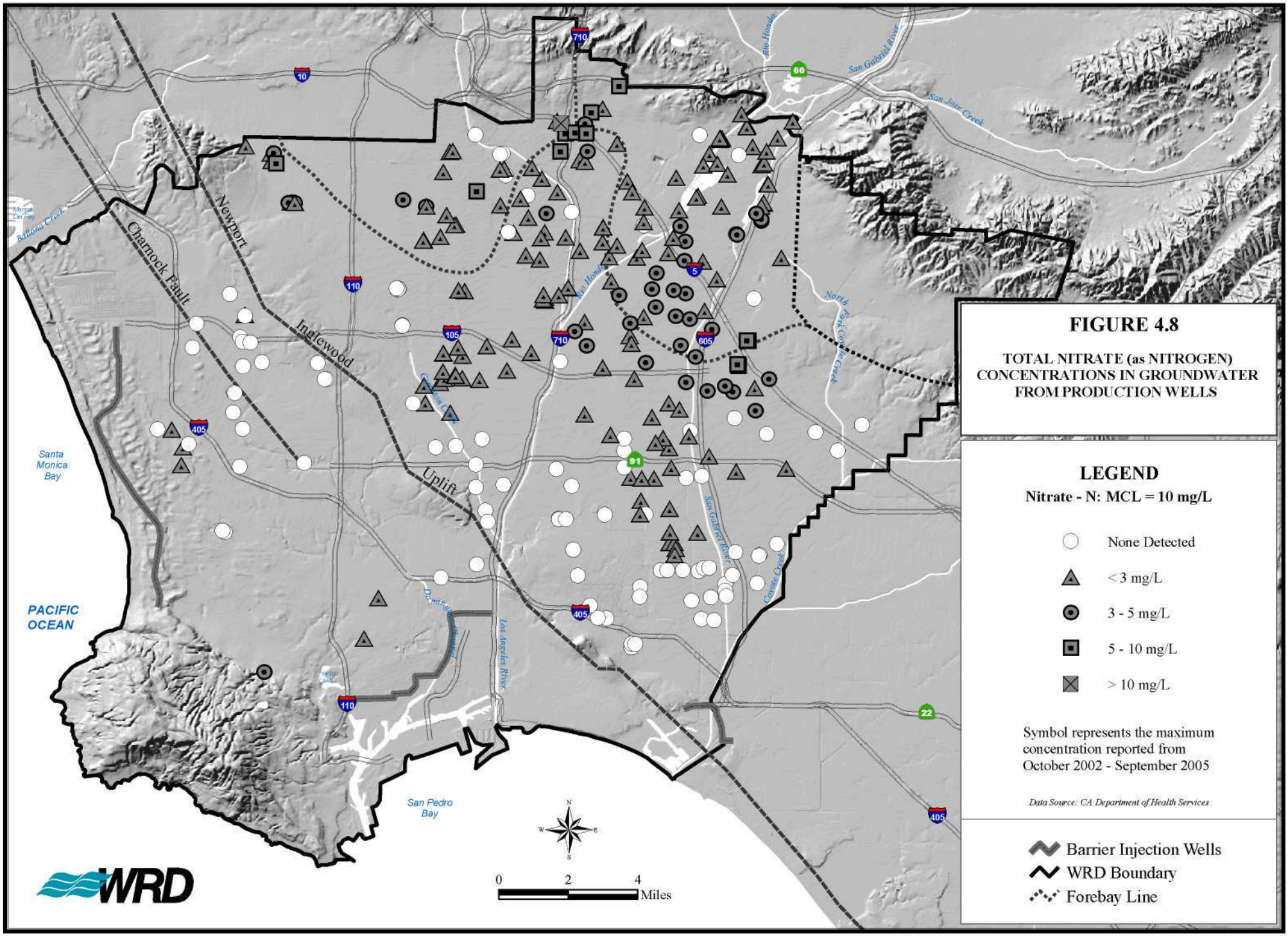
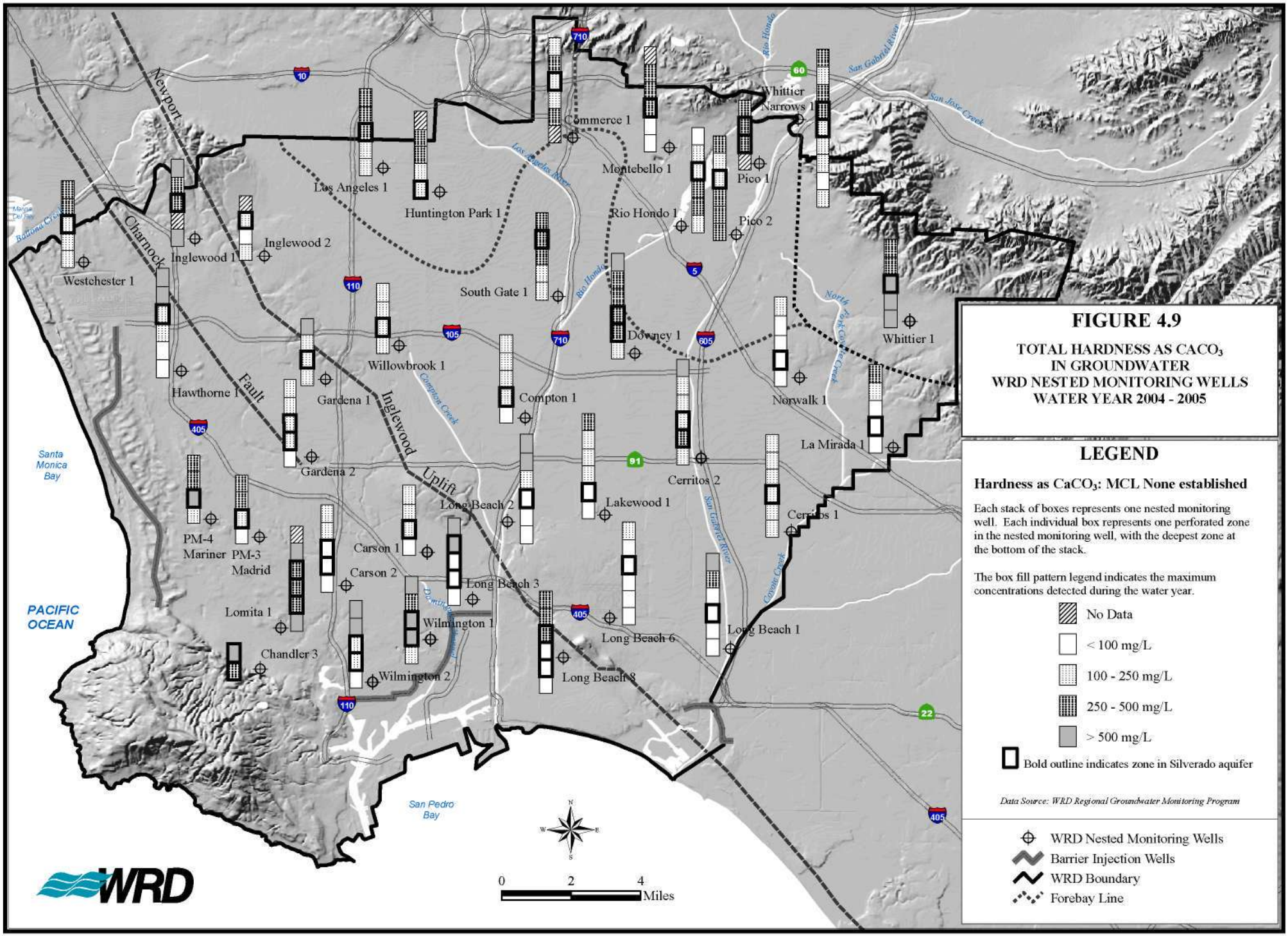


FIGURE 4.8
TOTAL NITRATE (as NITROGEN) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Nitrate - N: MCL = 10 mg/L
None Detected
< 3 mg/L
3 - 5 mg/L
5 - 10 mg/L
> 10 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Coyote Creek
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
North Fork Coyote Creek
Compton Creek
Dominguez Channel
Coyote Creek
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
Los Angeles 1
Huntington Park 1
Inglewood 1
Inglewood 2
Westchester 1
South Gate 1
Downey 1
Whittier 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
PM-4 Mariner
PM-3 Madrid
Carson 1
Carson 2
Long Beach 3
Lomita 1
Wilmington 1
Long Beach 6
Long Beach 1
Chandler 3
Wilmington 2
Long Beach 8
0 2 4 Miles
WRD
FIGURE 4.9
TOTAL HARDNESS AS $CACO_3$ IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Hardness as $CaCO_3$: MCL None established
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
< 100 mg/L
100 - 250 mg/L
250 - 500 mg/L
> 500 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

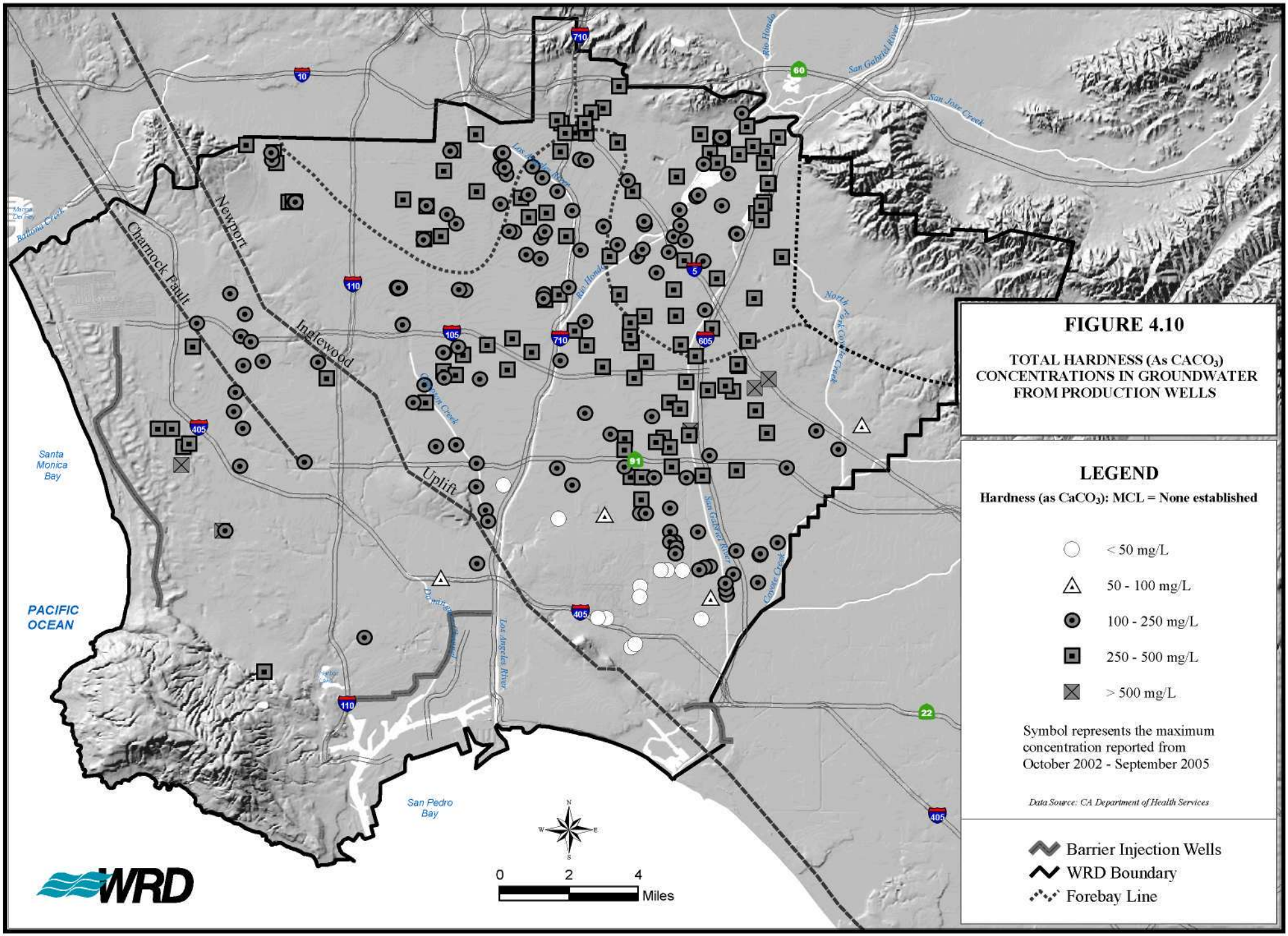
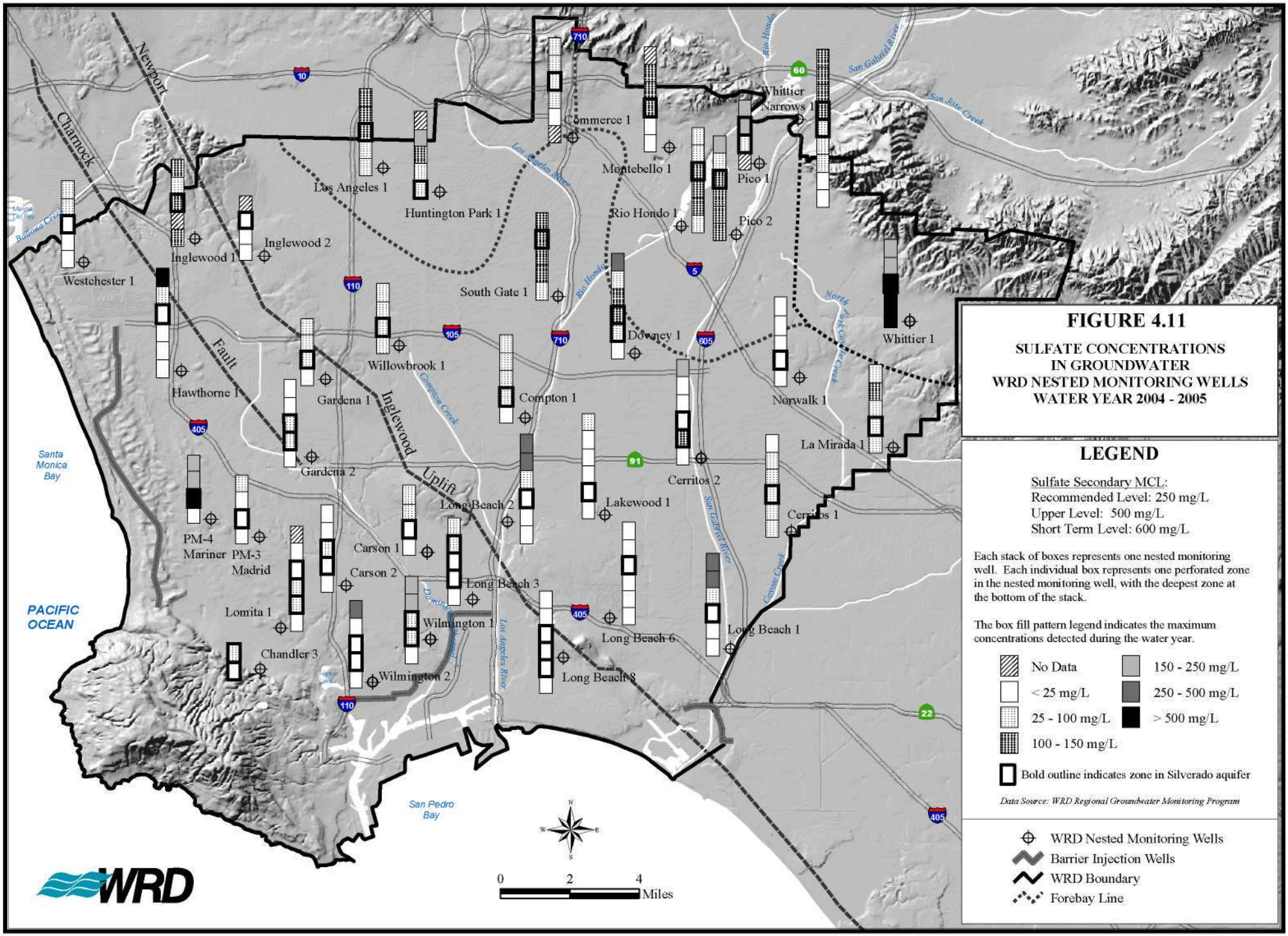


FIGURE 4.10
TOTAL HARDNESS (As $CACO_3$) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Hardness (as $CaCO_3$): MCL = None established
< 50 mg/L
50 - 100 mg/L
100 - 250 mg/L
250 - 500 mg/L
> 500 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Coyote Creek
Bolsa Chica
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
Inglewood 1
Inglewood 2
Westchester 1
South Gate 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
Downey 1
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD
FIGURE 4.11
SULFATE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Sulfate Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
< 25 mg/L
25 - 100 mg/L
100 - 150 mg/L
150 - 250 mg/L
250 - 500 mg/L
> 500 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

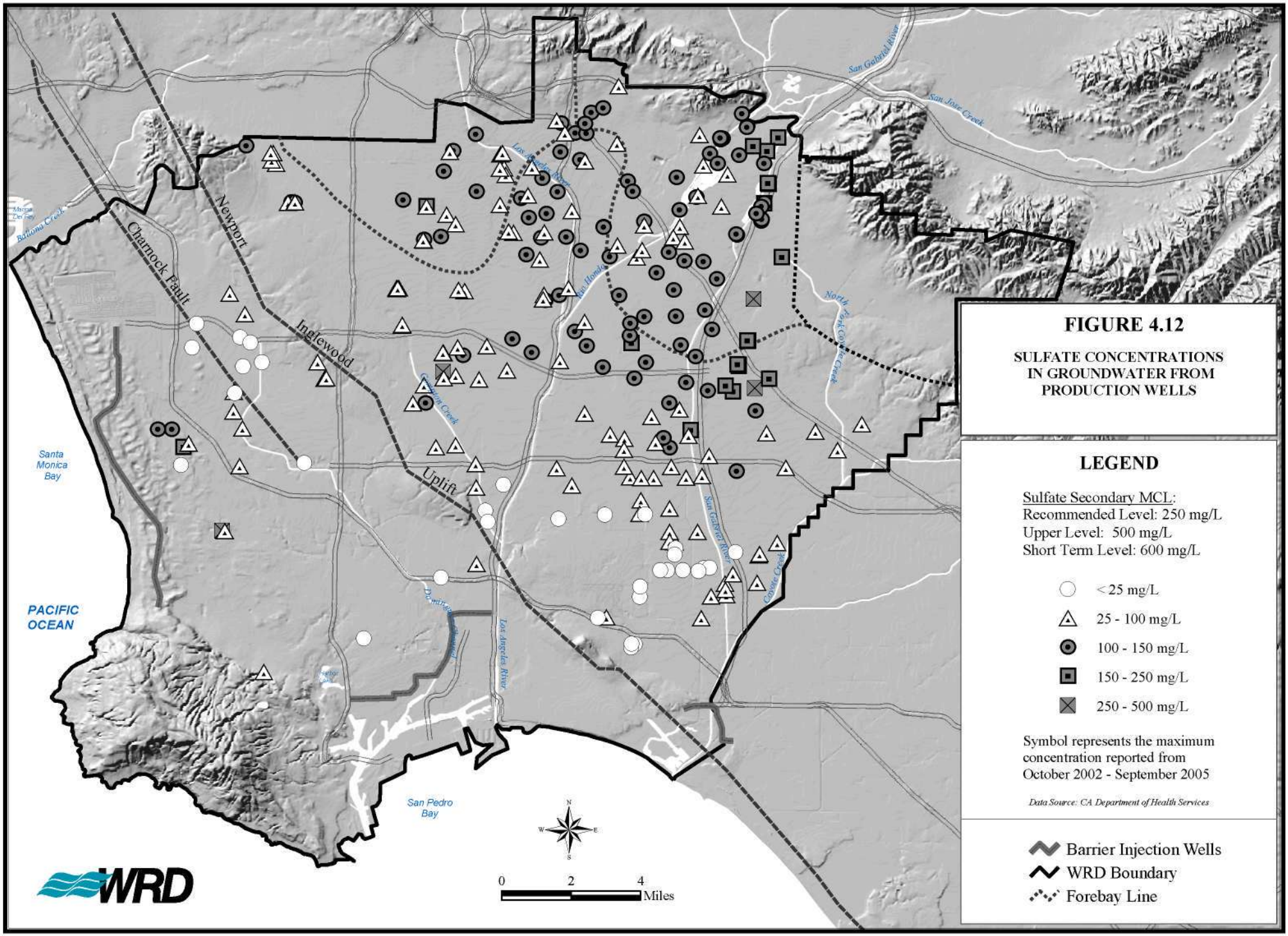


FIGURE 4.12
SULFATE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Sulfate Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
< 25 mg/L
25 - 100 mg/L
100 - 150 mg/L
150 - 250 mg/L
250 - 500 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
San Gabriel River
San Jose Creek
Los Angeles River
Rio Hondo
North Fork Coyote Creek
Coyote Creek
San Gabriel River
Bolsa Chica
Gaspar Creek
Dominguez Channel
0 2 4 Miles
N
W
E
S
WRD

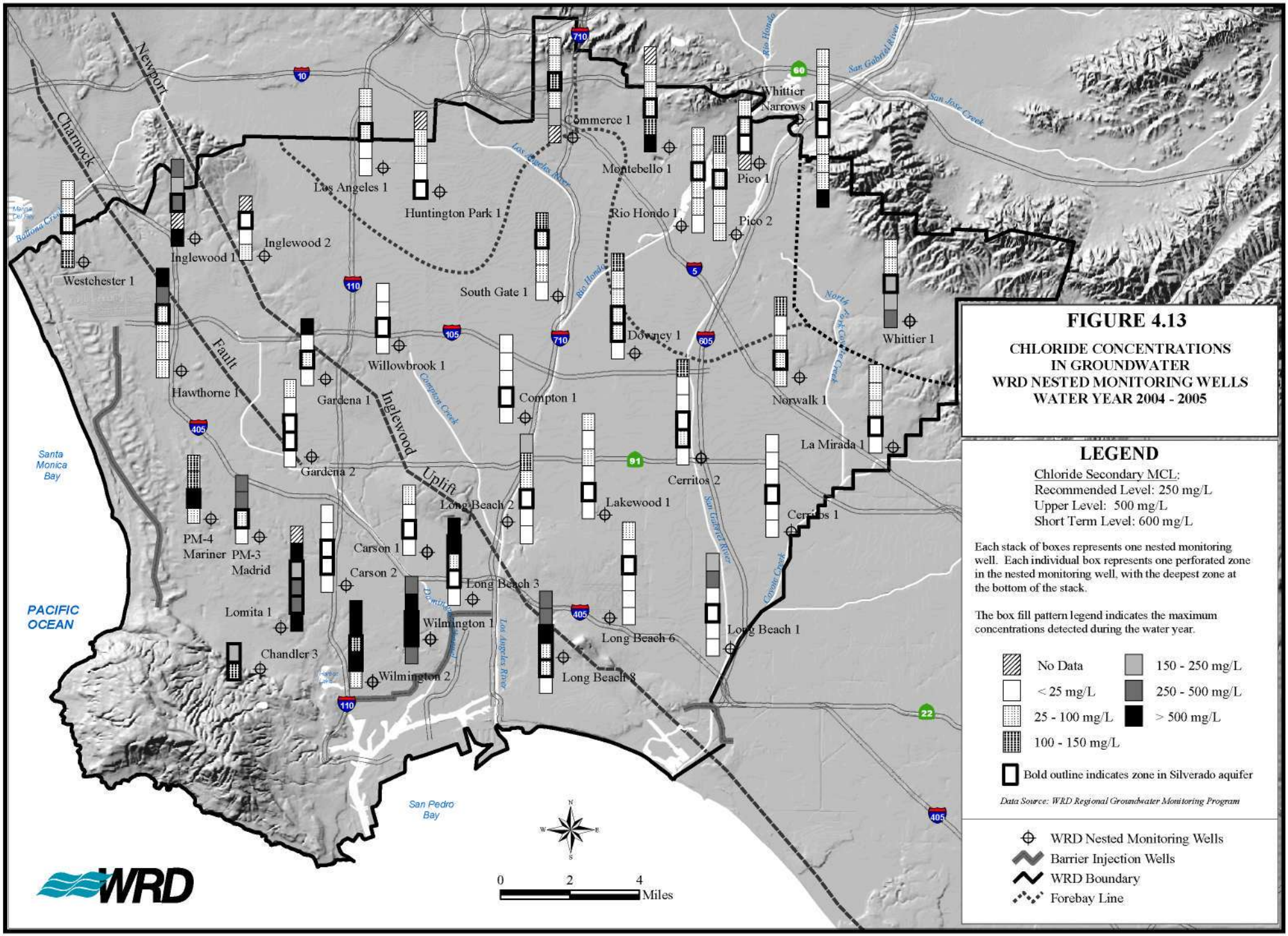


FIGURE 4.13
CHLORIDE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Chloride Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
< 25 mg/L
25 - 100 mg/L
100 - 150 mg/L
150 - 250 mg/L
250 - 500 mg/L
> 500 mg/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line
Whittier Narrows 1
Commerce 1
Montebello 1
Pico 1
Pico 2
Rio Hondo 1
Los Angeles 1
Huntington Park 1
Inglewood 1
Inglewood 2
Westchester 1
South Gate 1
Downey 1
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 1
Cerritos 2
Lakewood 1
Compton 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 1
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Newport
Charnock
Fault
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD

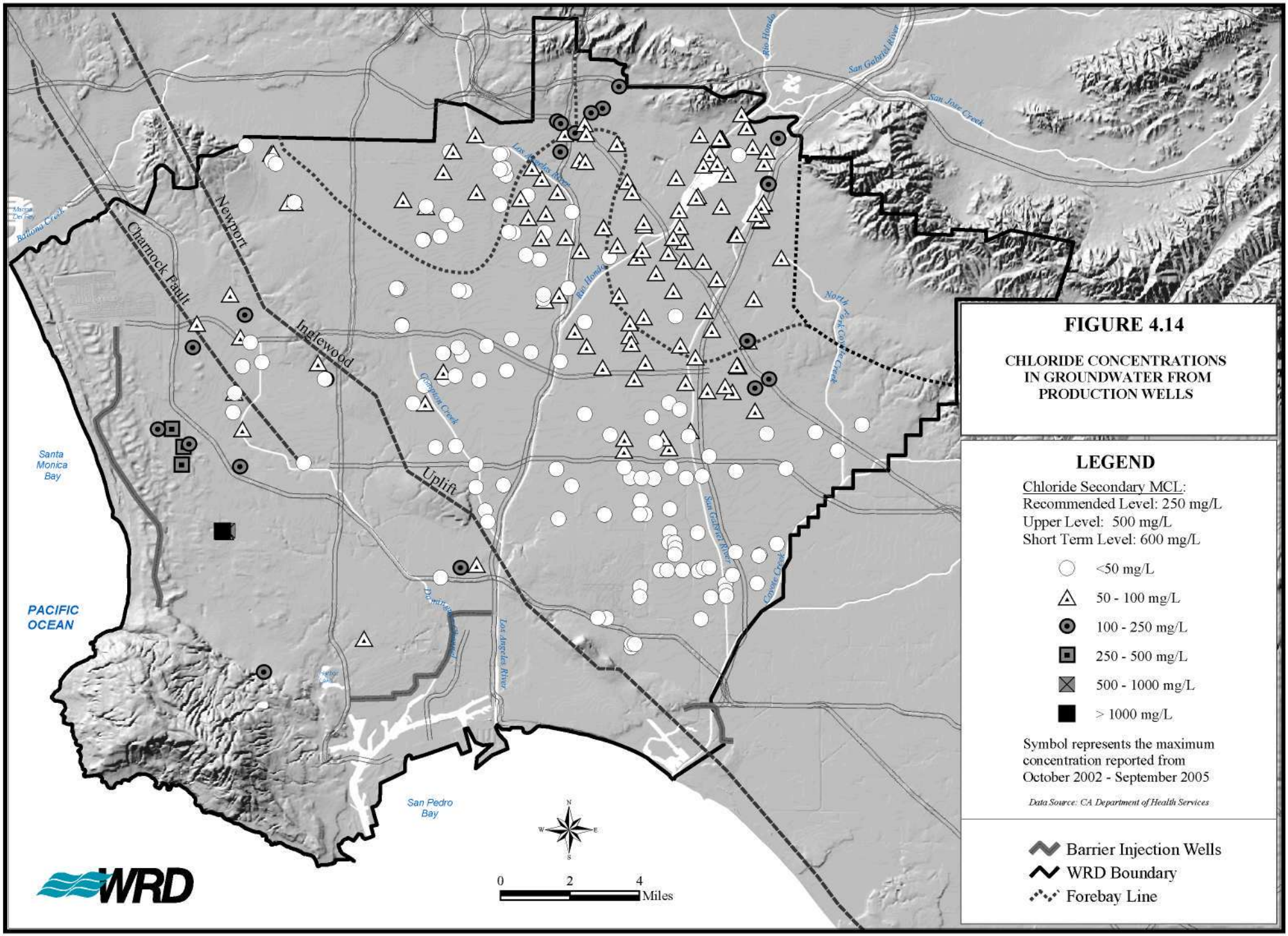


FIGURE 4.14
CHLORIDE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Chloride Secondary MCL:
Recommended Level: 250 mg/L
Upper Level: 500 mg/L
Short Term Level: 600 mg/L
<50 mg/L
50 - 100 mg/L
100 - 250 mg/L
250 - 500 mg/L
500 - 1000 mg/L
> 1000 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Newport
Charnock Fault
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
North Fork Coyote Creek
Coyote Creek
Compton Creek
Dominguez Channel
Bolsa Chica
Harbor
0 2 4 Miles
WRD

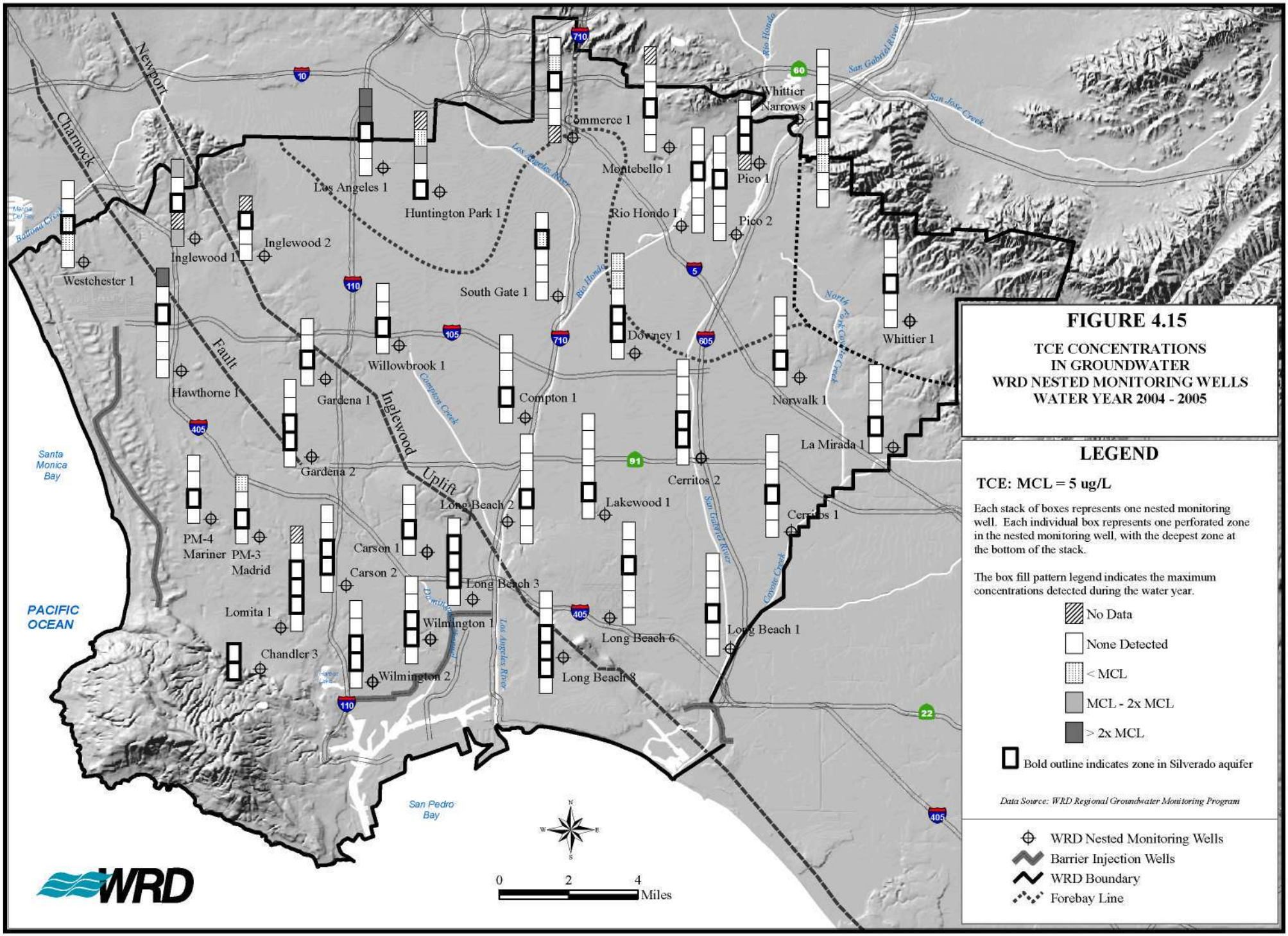


FIGURE 4.15
TCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
TCE: MCL = 5 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
South Gate 1
Willowbrook 1
Gardena 1
Gardena 2
Compton 1
Downey 1
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Newport
Charnock
Fault
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Compton Creek
Coyote Creek
0 2 4 Miles
WRD

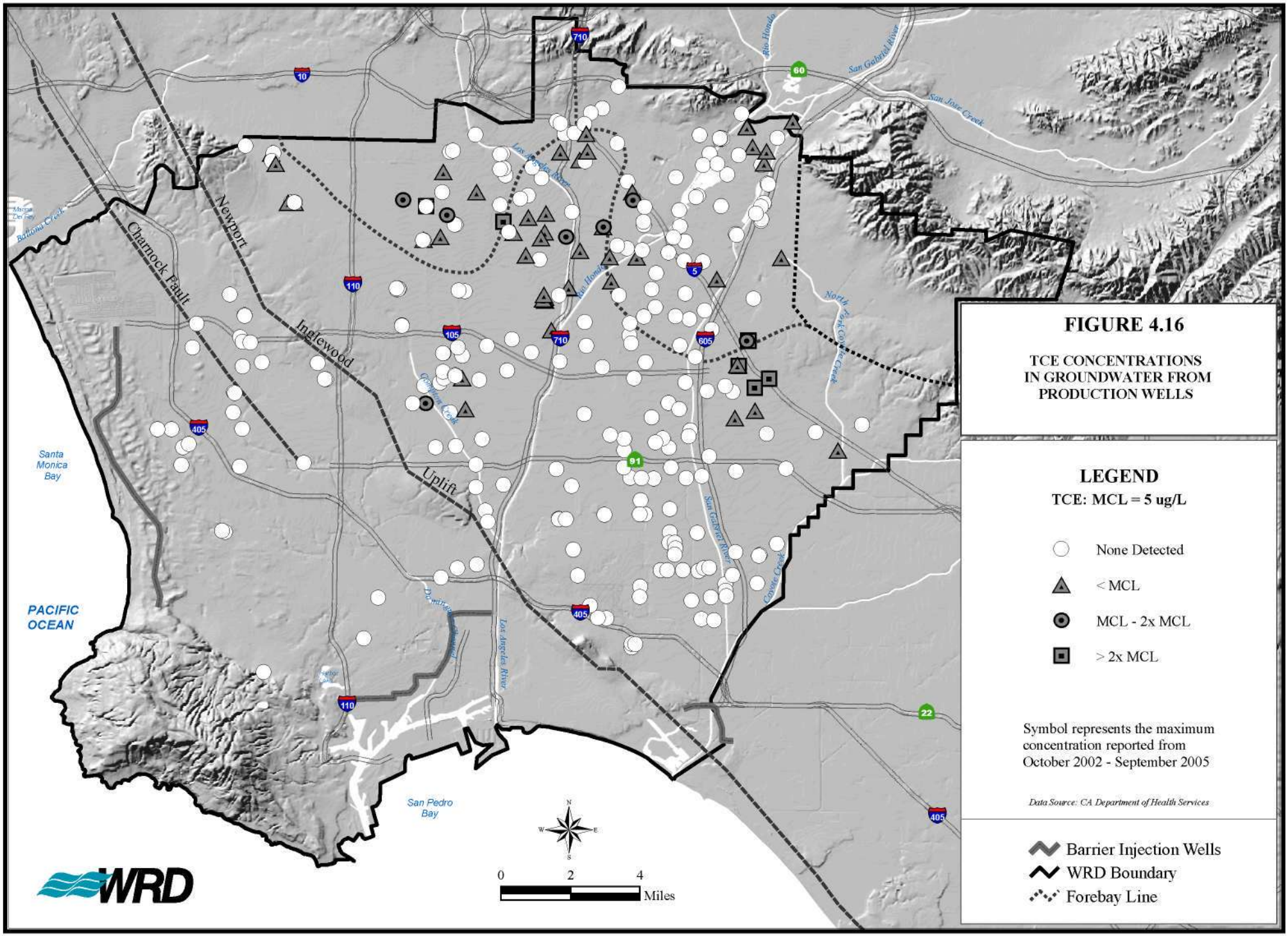
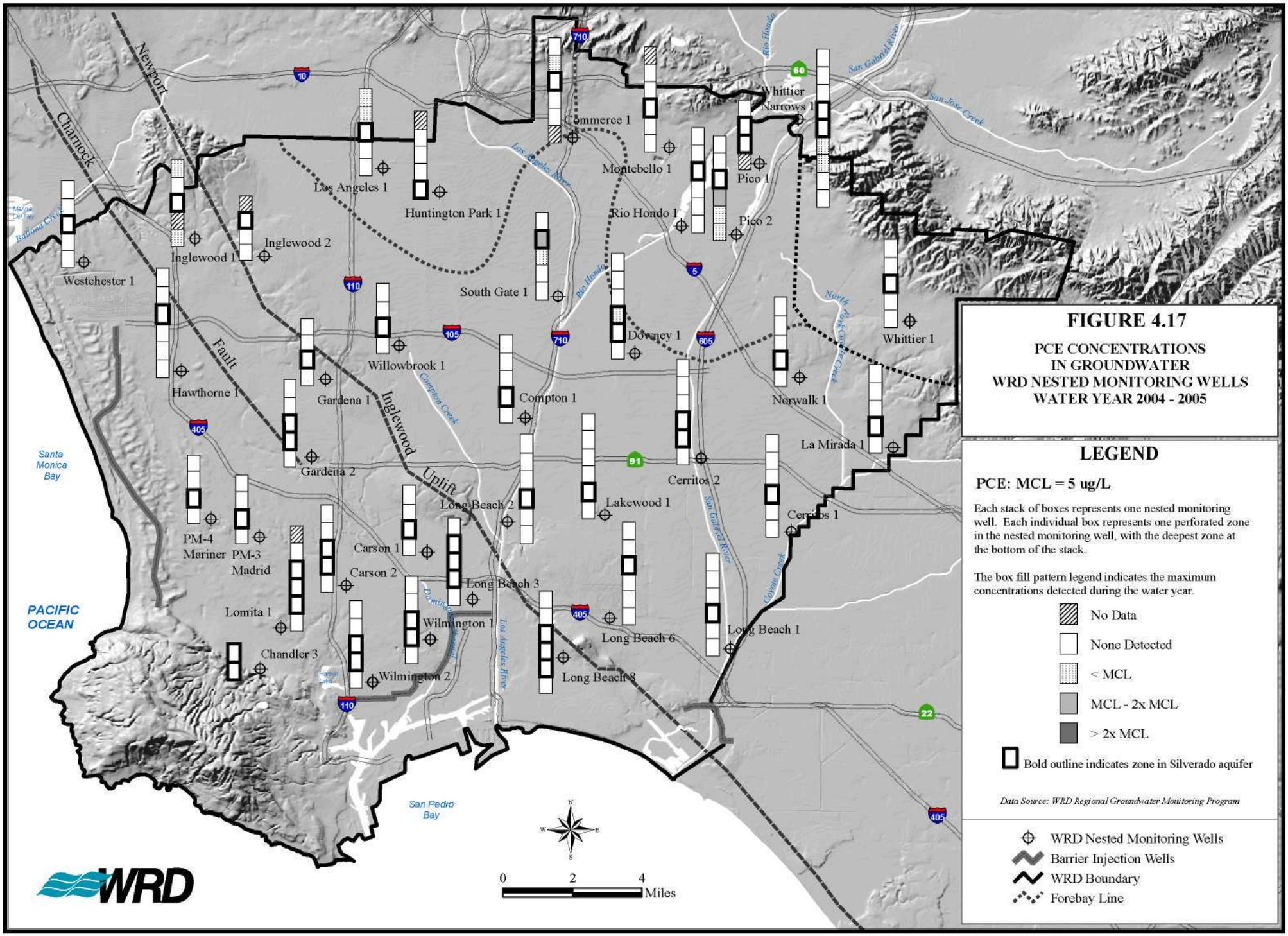


FIGURE 4.16
TCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TCE: MCL = 5 ug/L
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Rio Hondo
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
0 2 4
Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
Inglewood 1
Inglewood 2
Westchester 1
South Gate 1
Downey 1
Whittier 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 1
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
Compton Creek
Coyote Creek
San Jose Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD
FIGURE 4.17
PCE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
PCE: MCL = 5 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< MCL
MCL - 2x MCL
> 2x MCL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

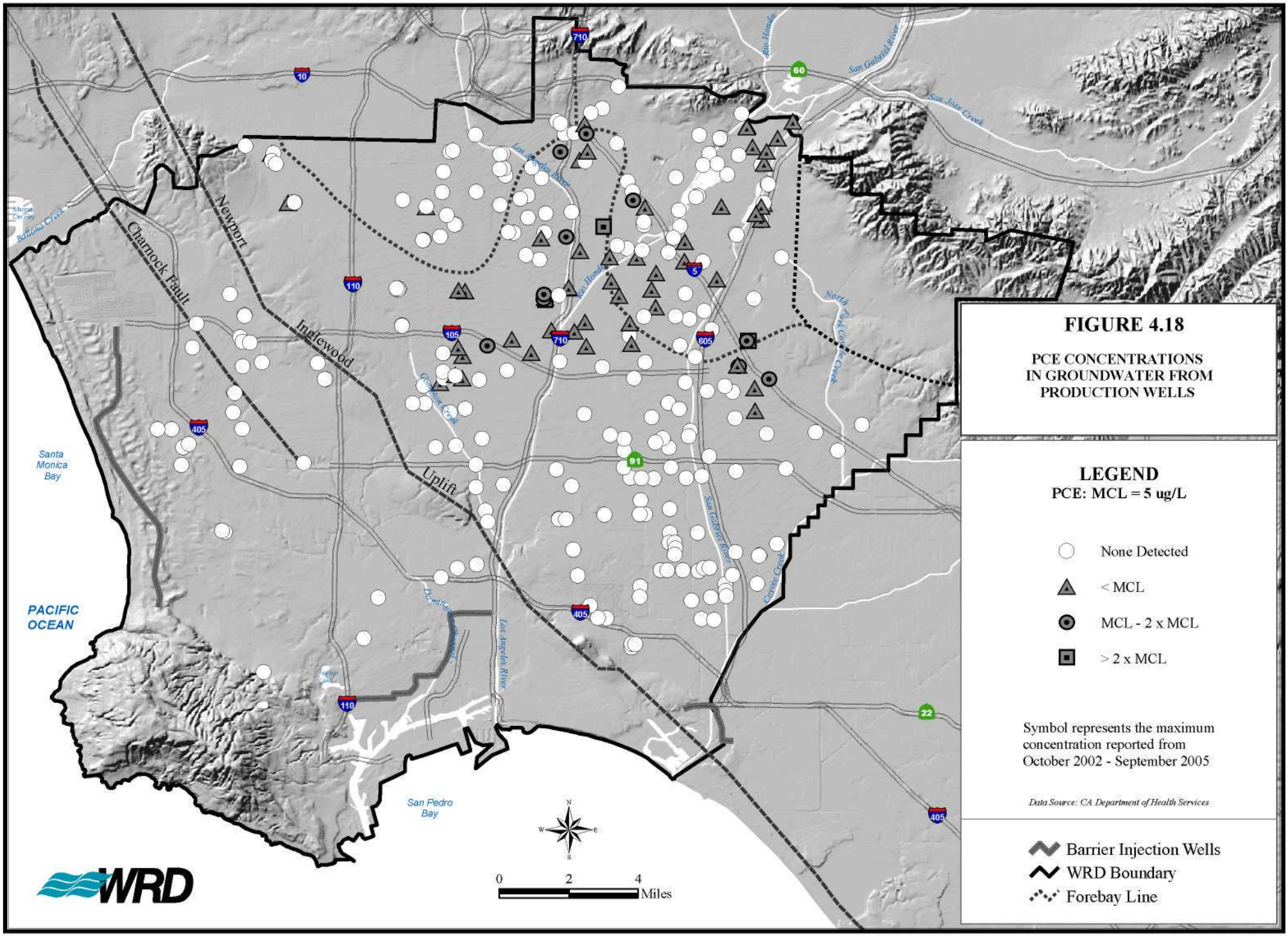


FIGURE 4.18
PCE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
PCE: MCL = 5 ug/L
None Detected
< MCL
MCL - 2 x MCL
> 2 x MCL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Coyote Creek
0 2 4 Miles
WRD

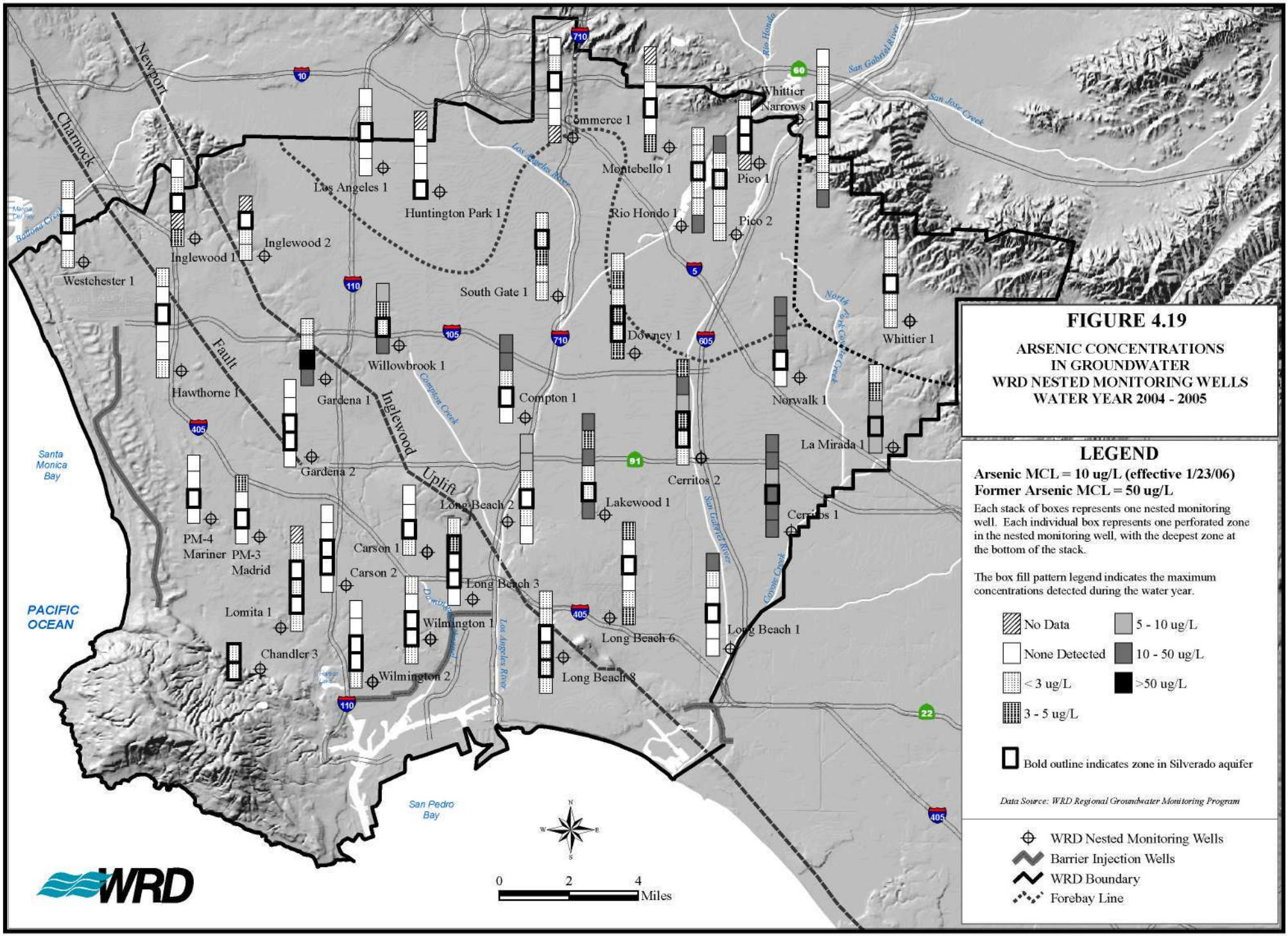


FIGURE 4.19
ARSENIC CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Arsenic MCL = 10 ug/L (effective 1/23/06)
Former Arsenic MCL = 50 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< 3 ug/L
3 - 5 ug/L
5 - 10 ug/L
10 - 50 ug/L
>50 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line
Westchester 1
Inglewood 1
Inglewood 2
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Rio Hondo 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 1
South Gate 1
Downey 1
Norwalk 1
La Mirada 1
Hawthorne 1
Willowbrook 1
Gardena 1
Gardena 2
Compton 1
Lakewood 1
Cerritos 2
Cerritos 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
PM-4 Mariner
PM-3 Madrid
Carson 1
Carson 2
Lomita 1
Chandler 3
Wilmington 1
Wilmington 2
Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles River
San Gabriel River
Coyote Creek
Compton Creek
North Fork Coyote Creek
San Jose Creek
Rio Hondo
Dominguez Channel
Harbor Lake
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
0 2 4 Miles
WRD

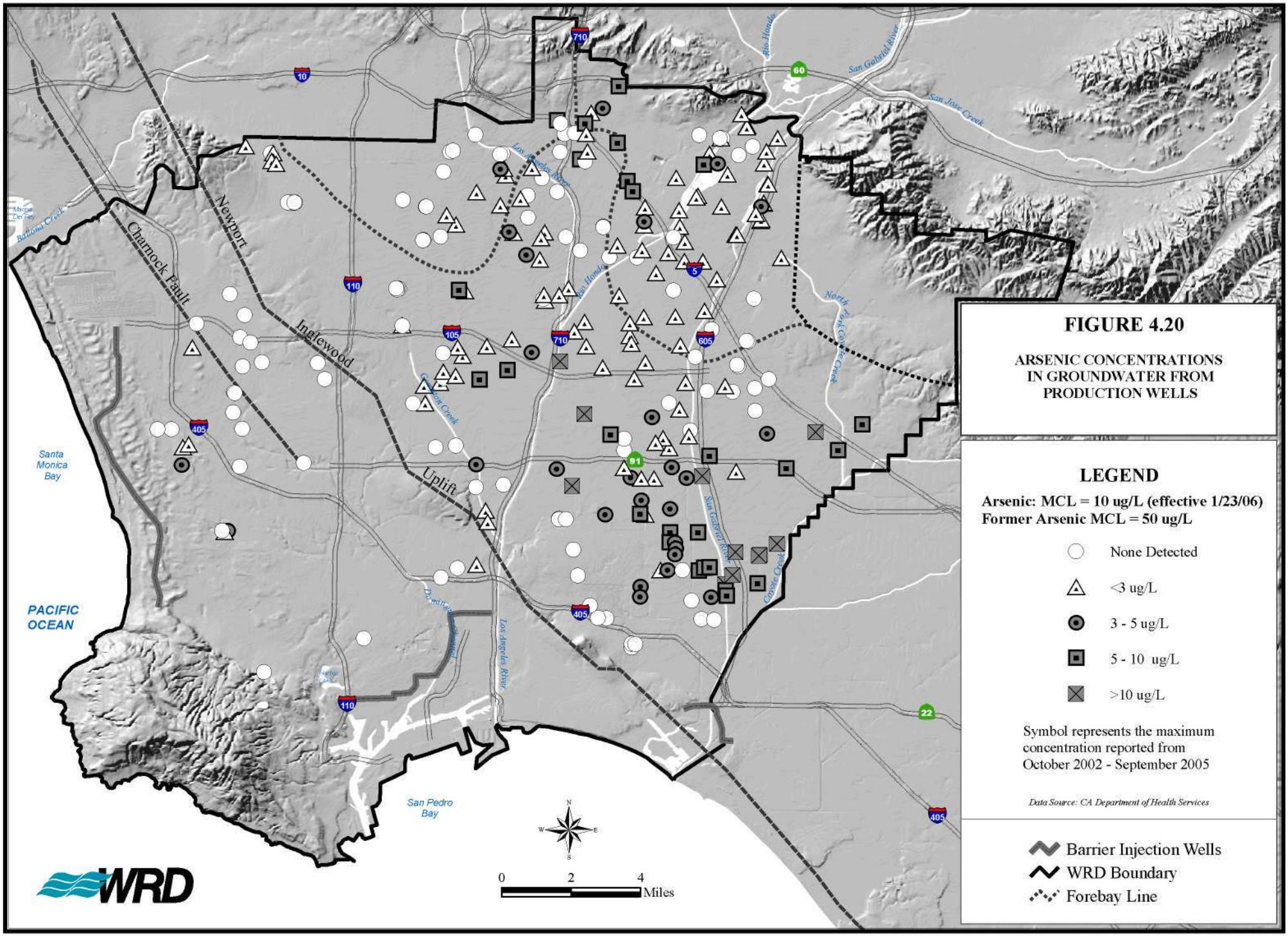
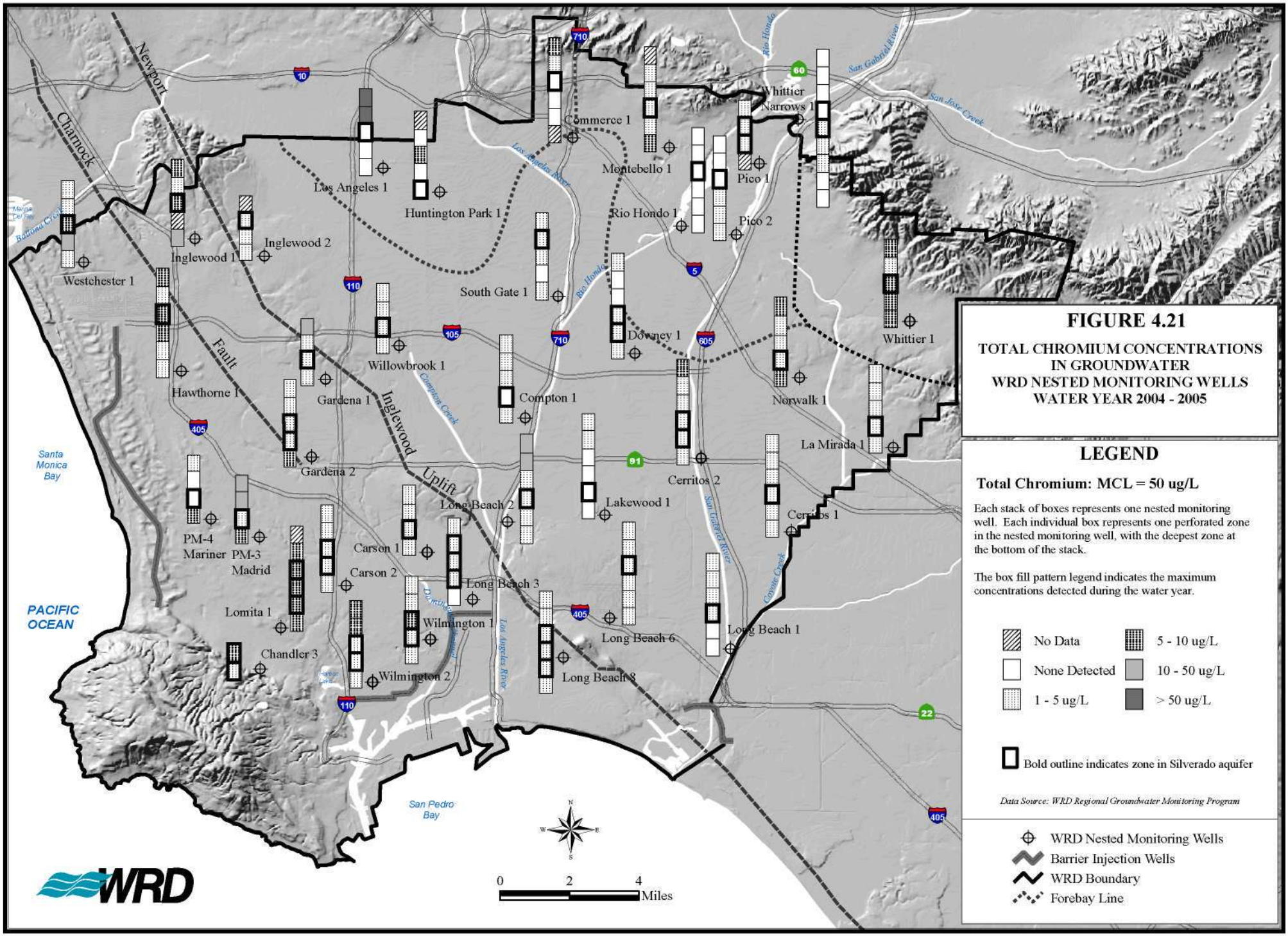


FIGURE 4.20
ARSENIC CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Arsenic: MCL = 10 ug/L (effective 1/23/06)
Former Arsenic MCL = 50 ug/L
None Detected
<3 ug/L
3 - 5 ug/L
5 - 10 ug/L
>10 ug/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
Coyote Creek
Compton Creek
Dominguez Channel
San Jose Creek
North Fork Coyote Creek
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Coyote Creek
Compton Creek
Dominguez Channel
Santa Monica Bay
San Pedro Bay
PACIFIC OCEAN
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Whittier Narrows 1
Pico 1
Pico 2
Rio Hondo 1
South Gate 1
Willowbrook 1
Gardena 1
Gardena 2
Compton 1
Downey 1
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Chandler 3
0 2 4 Miles
WRD
FIGURE 4.21
TOTAL CHROMIUM CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Total Chromium: MCL = 50 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
1 - 5 ug/L
5 - 10 ug/L
10 - 50 ug/L
> 50 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

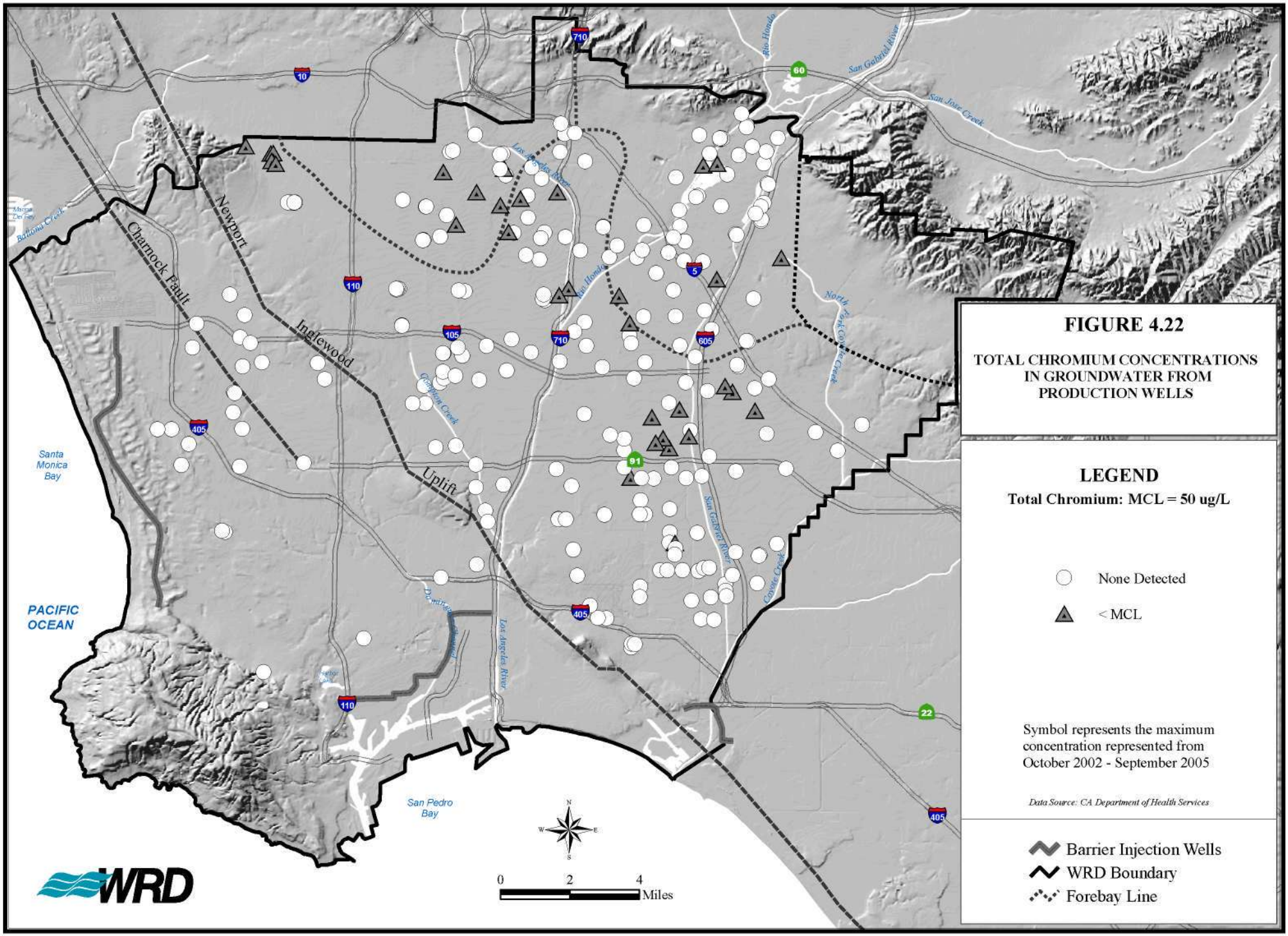
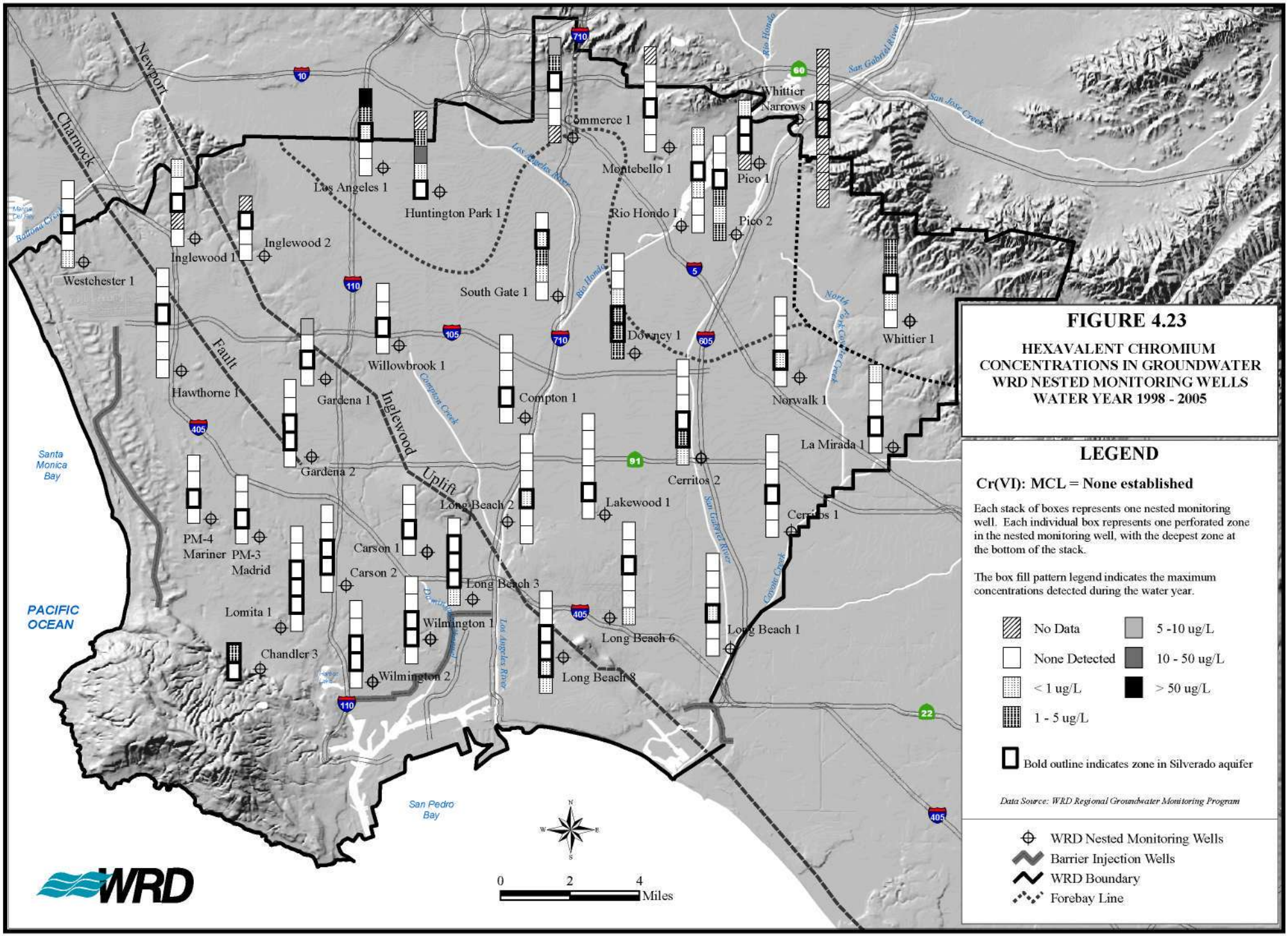


FIGURE 4.22
TOTAL CHROMIUM CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Total Chromium: MCL = 50 ug/L
None Detected
< MCL
Symbol represents the maximum concentration represented from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Coyote Creek
Compton Creek
Dominguez Channel
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Willowbrook 1
Los Angeles 1
Huntington Park 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Compton 1
Whittier Narrows 1
Pico 1
Pico 2
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Coyote Creek
Compton Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD
FIGURE 4.23
HEXAVALENT CHROMIUM CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 1998 - 2005
LEGEND
Cr(VI): MCL = None established
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< 1 ug/L
1 - 5 ug/L
5 -10 ug/L
10 - 50 ug/L
> 50 ug/L
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

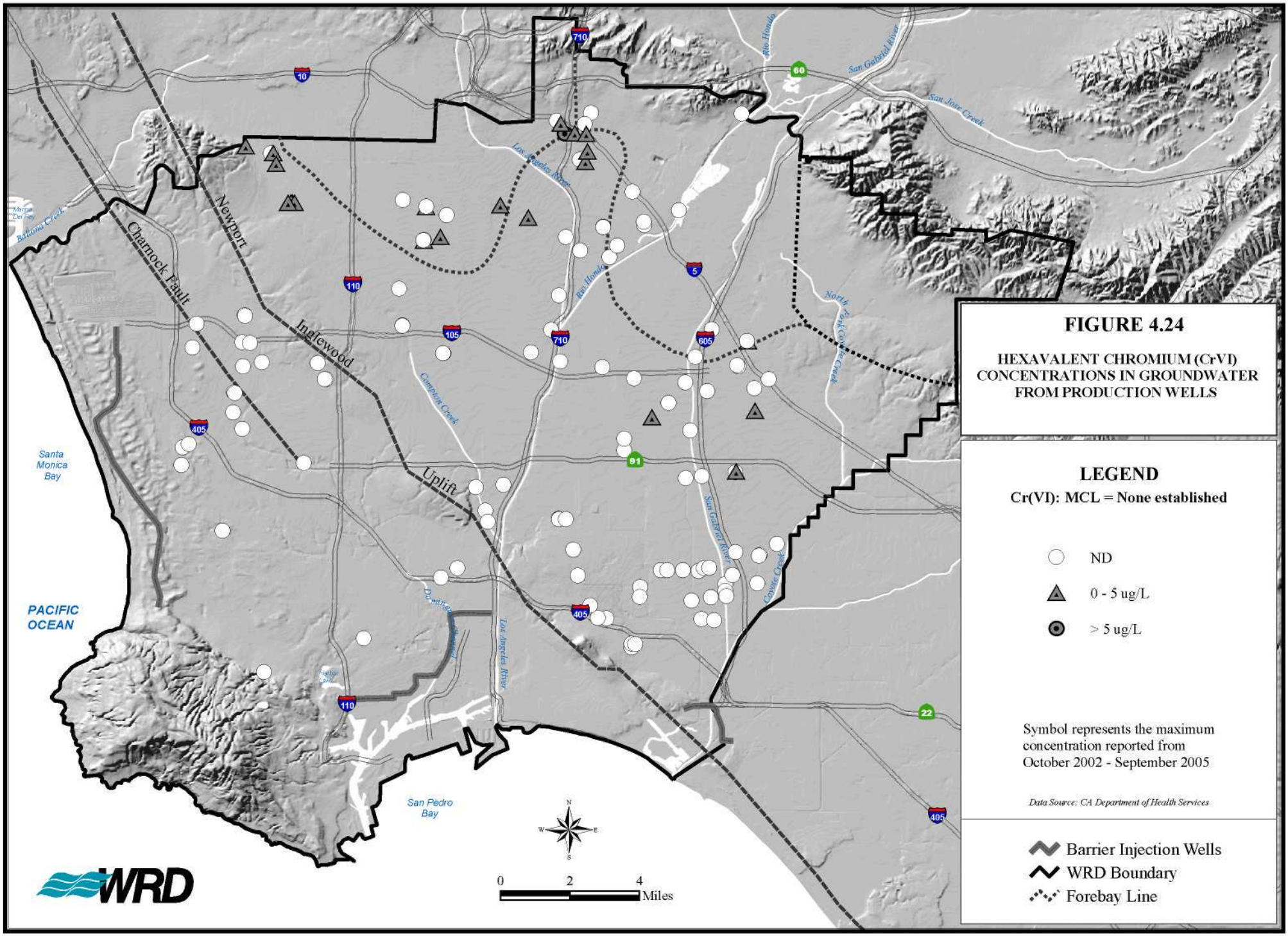
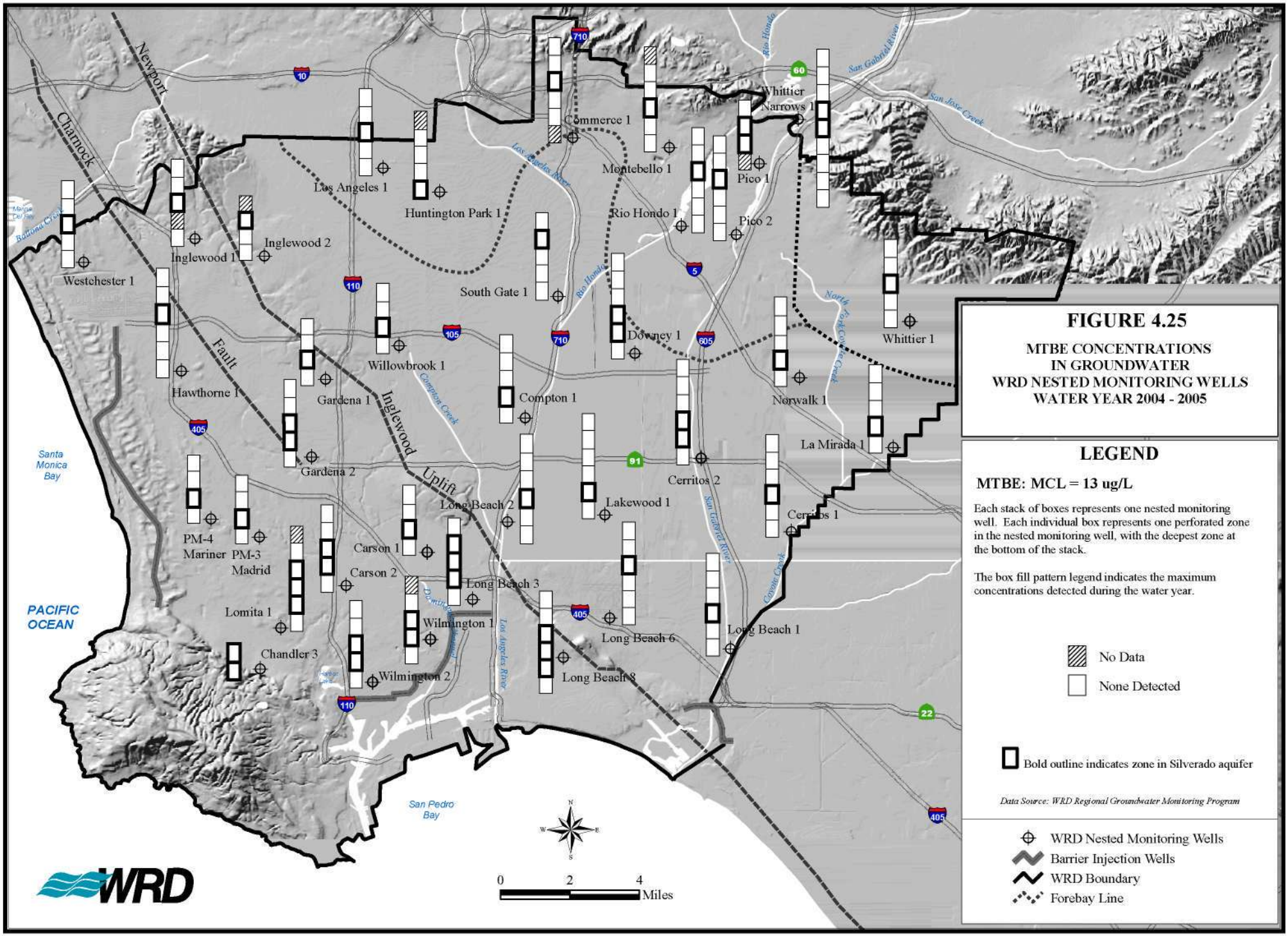


FIGURE 4.24
HEXAVALENT CHROMIUM (CrVI) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Cr(VI): MCL = None established
ND
0 - 5 ug/L
> 5 ug/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Newport
Charnock Fault
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Dominguez Channel
Ballona Creek
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Westchester 1
Inglewood 1
Inglewood 2
Los Angeles 1
Huntington Park 1
Commerce 1
Montebello 1
Rio Hondo 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 1
South Gate 1
Downey 1
Norwalk 1
La Mirada 1
Willowbrook 1
Hawthorne 1
Gardena 1
Gardena 2
Compton 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 1
Long Beach 8
Carson 1
Carson 2
Wilmington 1
Wilmington 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Chandler 3
Rio Hondo
San Gabriel River
San Jose Creek
Los Angeles River
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
0 2 4 Miles
WRD
FIGURE 4.25
MTBE CONCENTRATIONS
IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
MTBE: MCL = 13 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

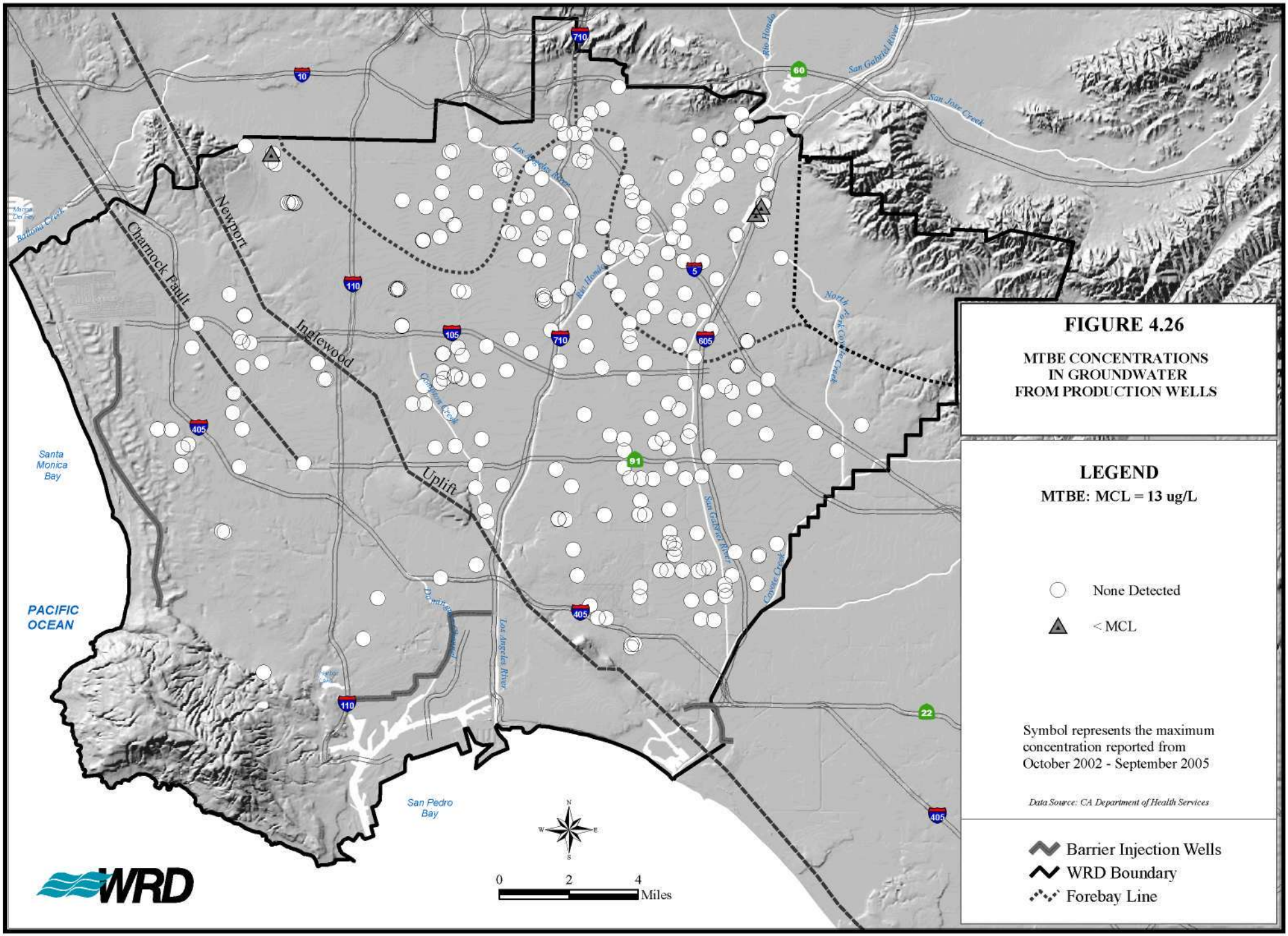


FIGURE 4.26
MTBE CONCENTRATIONS
IN GROUNDWATER
FROM PRODUCTION WELLS
LEGEND
MTBE: MCL = 13 ug/L
None Detected
< MCL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Coyote Creek
Compton Creek
Dominguez Channel
0 2 4 Miles
WRD

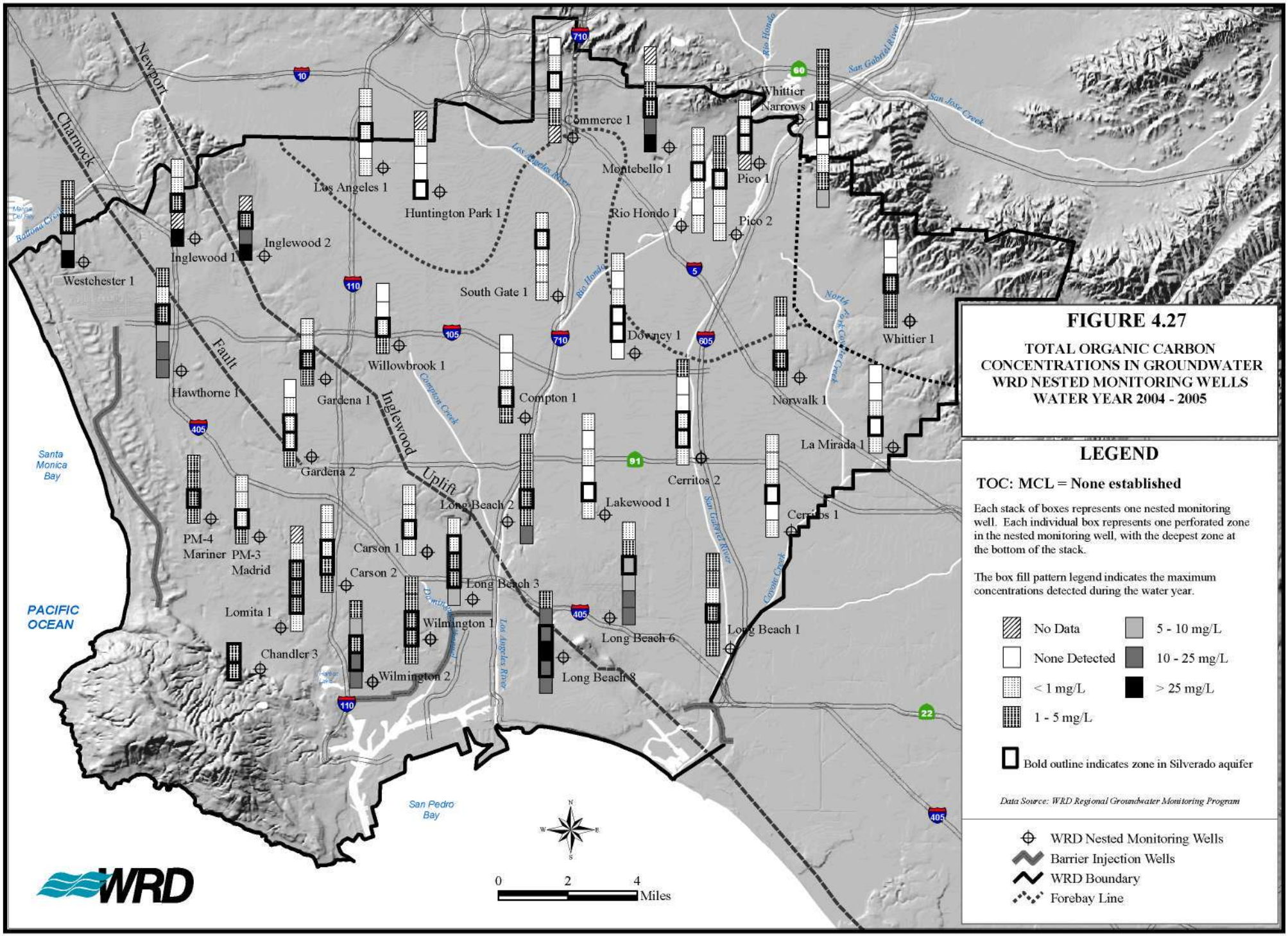


FIGURE 4.27

TOTAL ORGANIC CARBON CONCENTRATIONS IN GROUNDWATER WRD NESTED MONITORING WELLS WATER YEAR 2004 - 2005

LEGEND

TOC: MCL = None established

Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.

The box fill pattern legend indicates the maximum concentrations detected during the water year.

- No Data
- None Detected
- < 1 mg/L
- 1 - 5 mg/L
- 5 - 10 mg/L
- 10 - 25 mg/L
- > 25 mg/L

Bold outline indicates zone in Silverado aquifer

Data Source: WRD Regional Groundwater Monitoring Program

- WRD Nested Monitoring Wells
- Barrier Injection Wells
- WRD Boundary
- Forebay Line

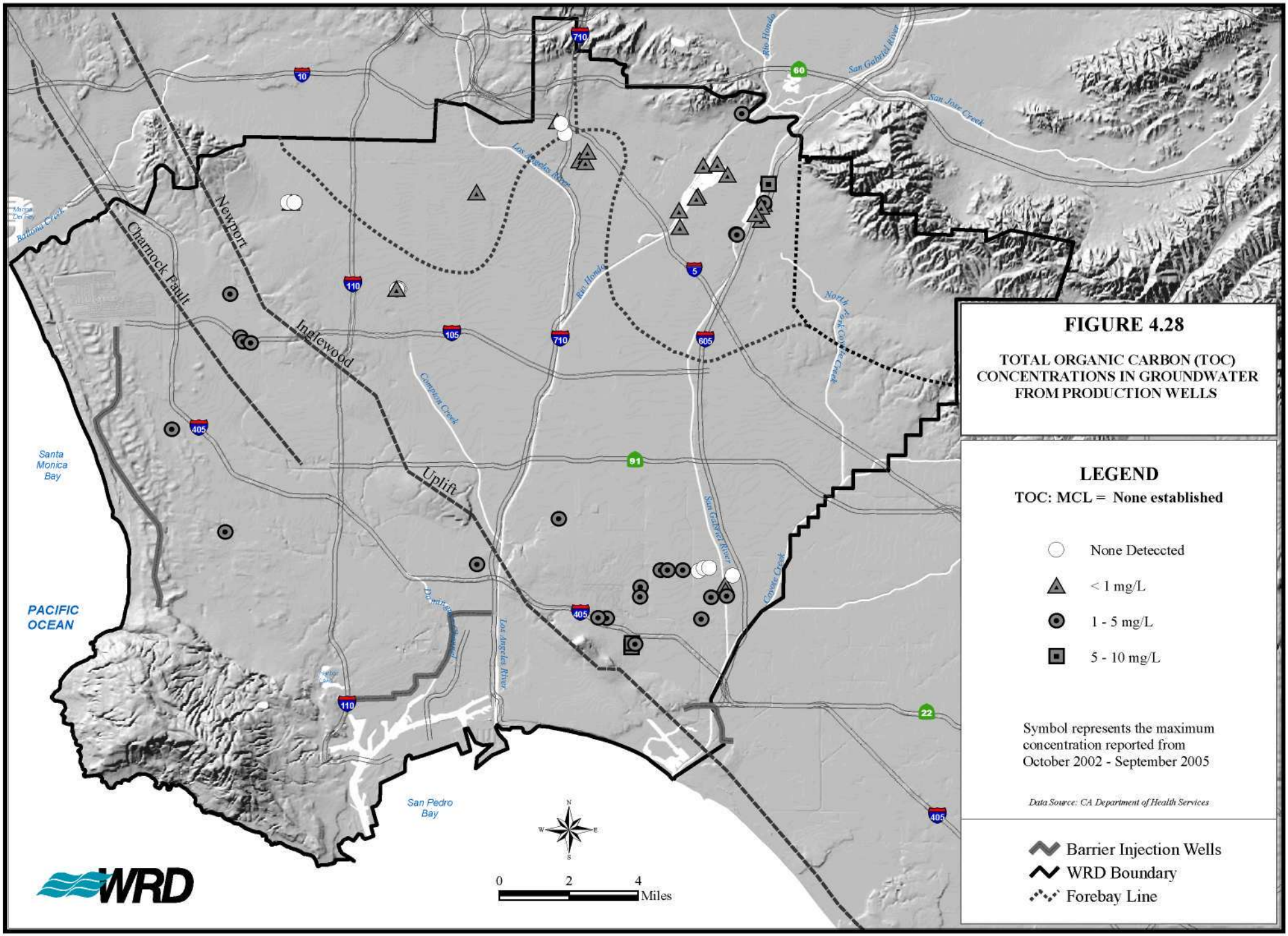
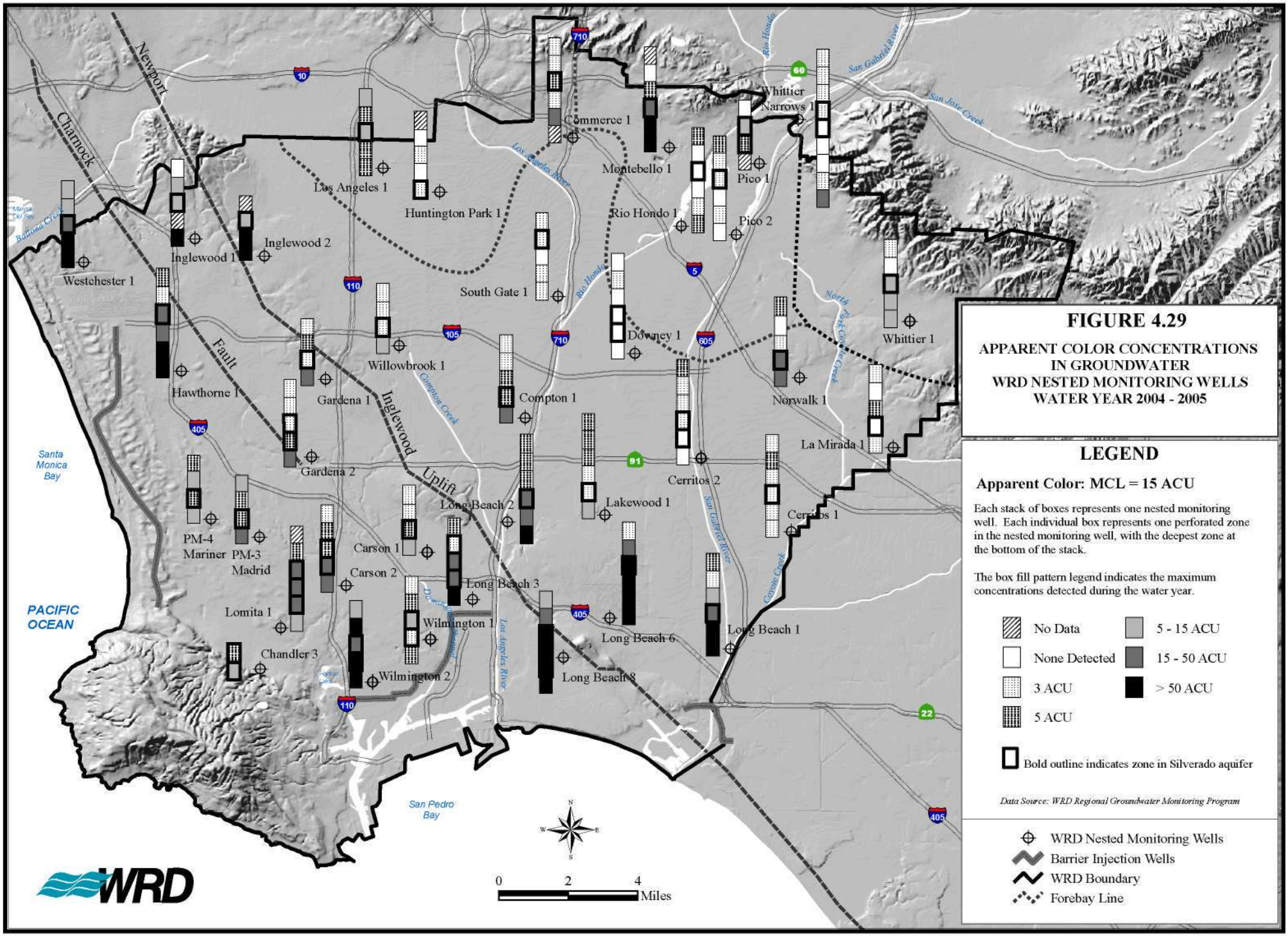


FIGURE 4.28
TOTAL ORGANIC CARBON (TOC) CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
TOC: MCL = None established
None Detecctd
< 1 mg/L
1 - 5 mg/L
5 - 10 mg/L
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Bolsa Chica
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Los Angeles 1
Huntington Park 1
Gardena 1
Gardena 2
Willowbrook 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Pico 1
Pico 2
Whittier Narrows 1
Whittier 1
Downey 1
Compton 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
PM-4 Mariner
PM-3 Madrid
Lomita 1
Chandler 3
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
San Jose Creek
Compton Creek
Coyote Creek
North Fork Coyote Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD
FIGURE 4.29
APPARENT COLOR CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 2004 - 2005
LEGEND
Apparent Color: MCL = 15 ACU
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
3 ACU
5 ACU
5 - 15 ACU
15 - 50 ACU
> 50 ACU
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

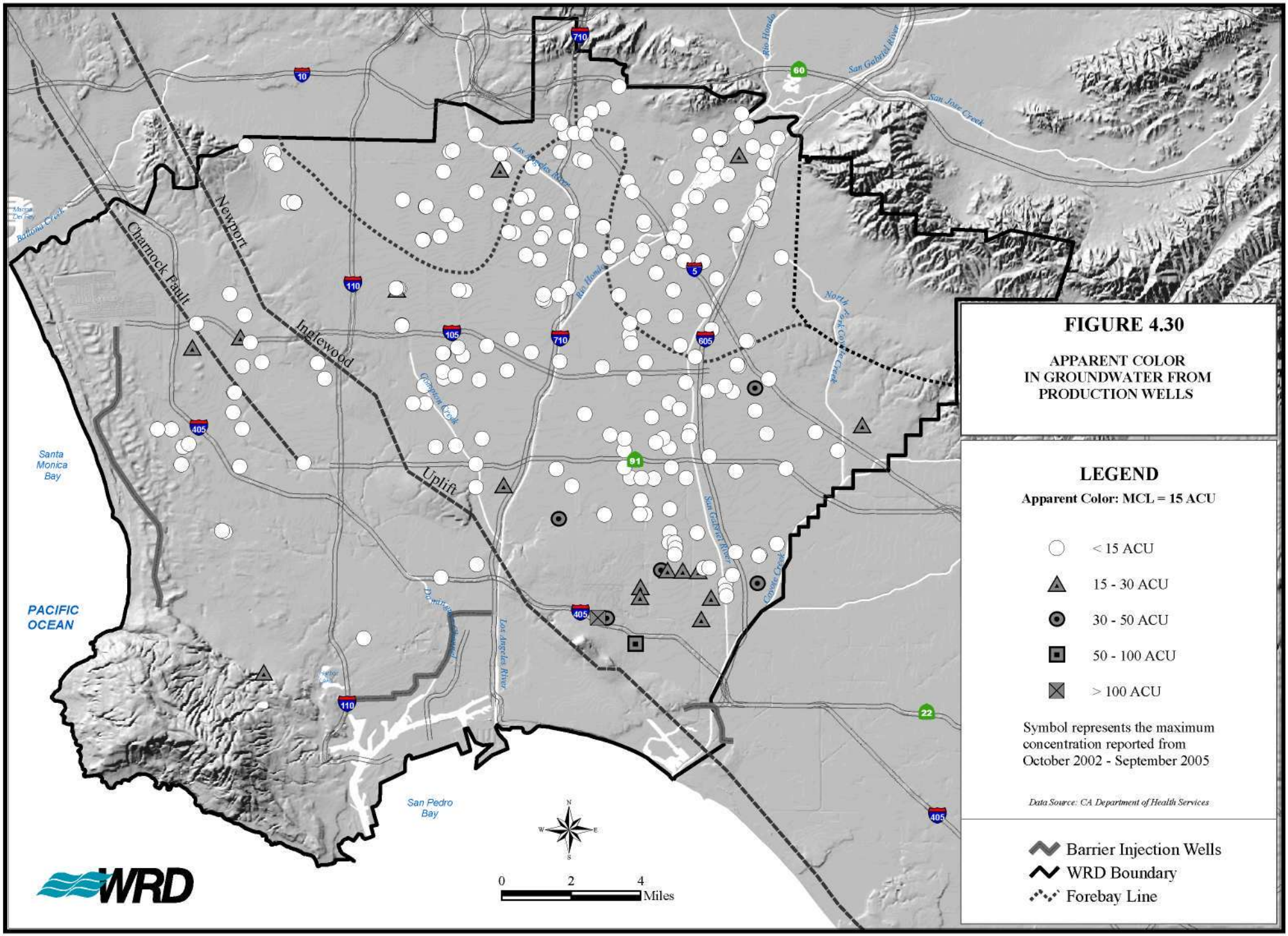
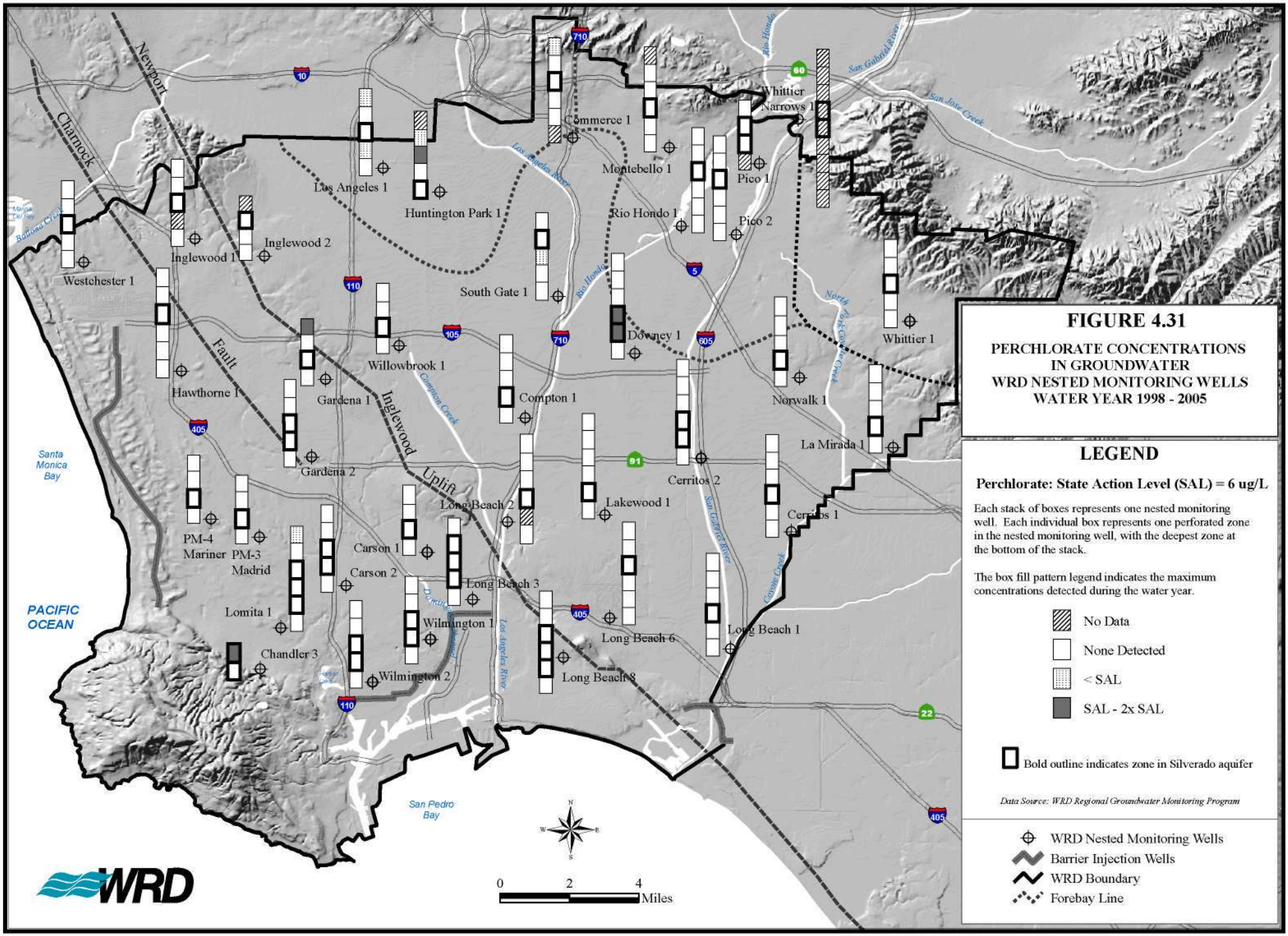


FIGURE 4.30
APPARENT COLOR
IN GROUNDWATER FROM
PRODUCTION WELLS
LEGEND
Apparent Color: MCL = 15 ACU
< 15 ACU
15 - 30 ACU
30 - 50 ACU
50 - 100 ACU
> 100 ACU
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
Los Angeles River
San Gabriel River
Rio Hondo
San Jose Creek
Coyote Creek
Compton Creek
Dominguez Channel
Bolsa Chica
Harbor Park
0 2 4 Miles
WRD


Newport
Charnock
Fault
Inglewood
Uplift
Westchester 1
Inglewood 1
Inglewood 2
Hawthorne 1
Gardena 1
Gardena 2
Willowbrook 1
Los Angeles 1
Huntington Park 1
South Gate 1
Commerce 1
Montebello 1
Rio Hondo 1
Downey 1
Compton 1
Whittier Narrows 1
Pico 1
Pico 2
Whittier 1
Norwalk 1
La Mirada 1
Cerritos 2
Cerritos 1
Lakewood 1
Long Beach 2
Long Beach 3
Long Beach 6
Long Beach 8
Long Beach 1
Carson 1
Carson 2
Wilmington 1
Wilmington 2
Lomita 1
Chandler 3
PM-4 Mariner
PM-3 Madrid
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
Rio Hondo
San Gabriel River
Coyote Creek
Compton Creek
North Fork Coyote Creek
San Jose Creek
Dominguez Channel
Harbor Lake
0 2 4 Miles
WRD
FIGURE 4.31
PERCHLORATE CONCENTRATIONS IN GROUNDWATER
WRD NESTED MONITORING WELLS
WATER YEAR 1998 - 2005
LEGEND
Perchlorate: State Action Level (SAL) = 6 ug/L
Each stack of boxes represents one nested monitoring well. Each individual box represents one perforated zone in the nested monitoring well, with the deepest zone at the bottom of the stack.
The box fill pattern legend indicates the maximum concentrations detected during the water year.
No Data
None Detected
< SAL
SAL - 2x SAL
Bold outline indicates zone in Silverado aquifer
Data Source: WRD Regional Groundwater Monitoring Program
WRD Nested Monitoring Wells
Barrier Injection Wells
WRD Boundary
Forebay Line

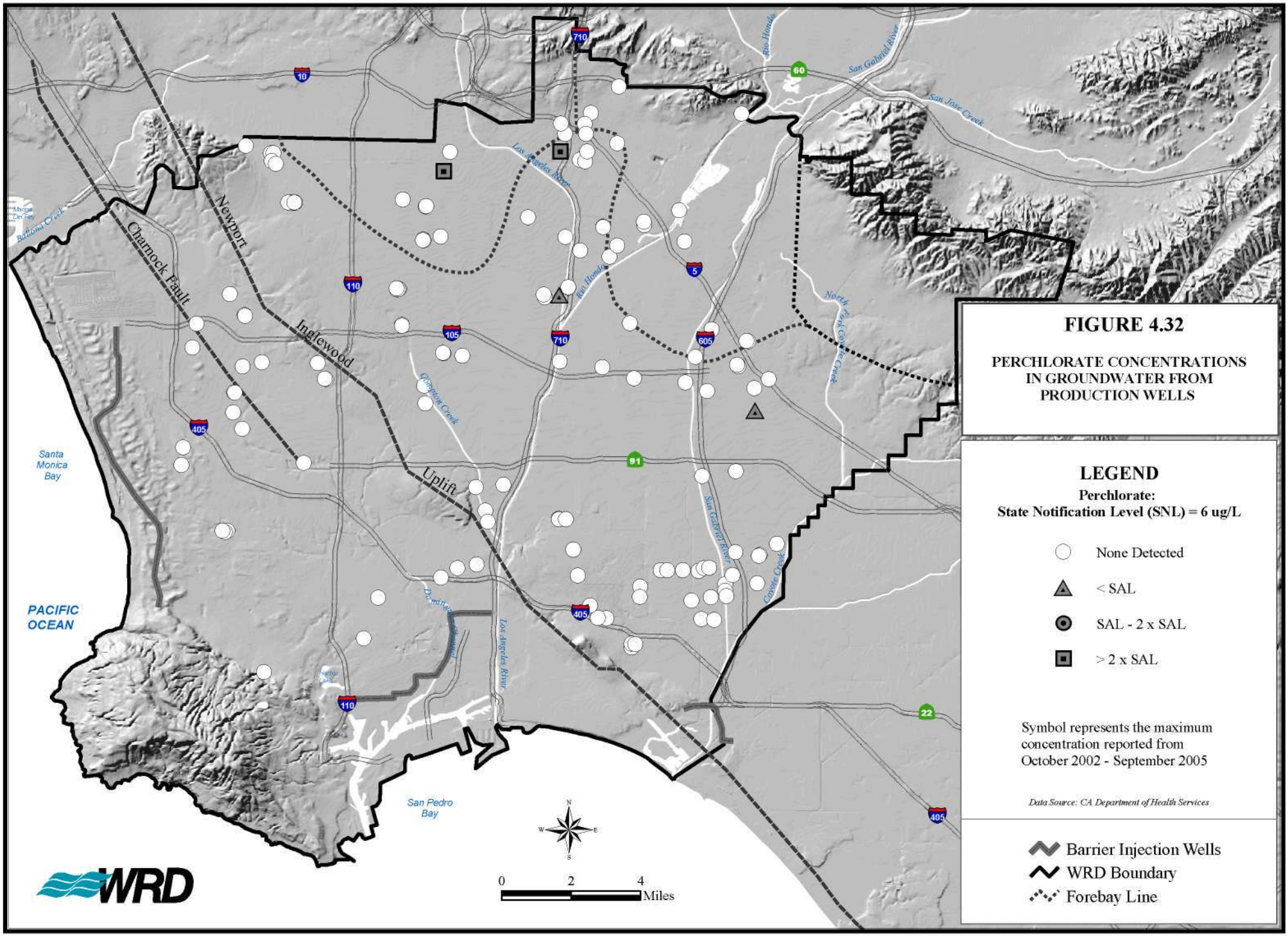


FIGURE 4.32
PERCHLORATE CONCENTRATIONS IN GROUNDWATER FROM PRODUCTION WELLS
LEGEND
Perchlorate:
State Notification Level (SNL) = 6 ug/L
None Detected
< SAL
SAL - 2 x SAL
> 2 x SAL
Symbol represents the maximum concentration reported from October 2002 - September 2005
Data Source: CA Department of Health Services
Barrier Injection Wells
WRD Boundary
Forebay Line
Charnock Fault
Newport
Inglewood
Uplift
Santa Monica Bay
PACIFIC OCEAN
San Pedro Bay
Los Angeles River
San Gabriel River
San Jose Creek
Rio Hondo
Compton Creek
North Fork Coyote Creek
Coyote Creek
Dominguez Channel
WRD
0 2 4 Miles

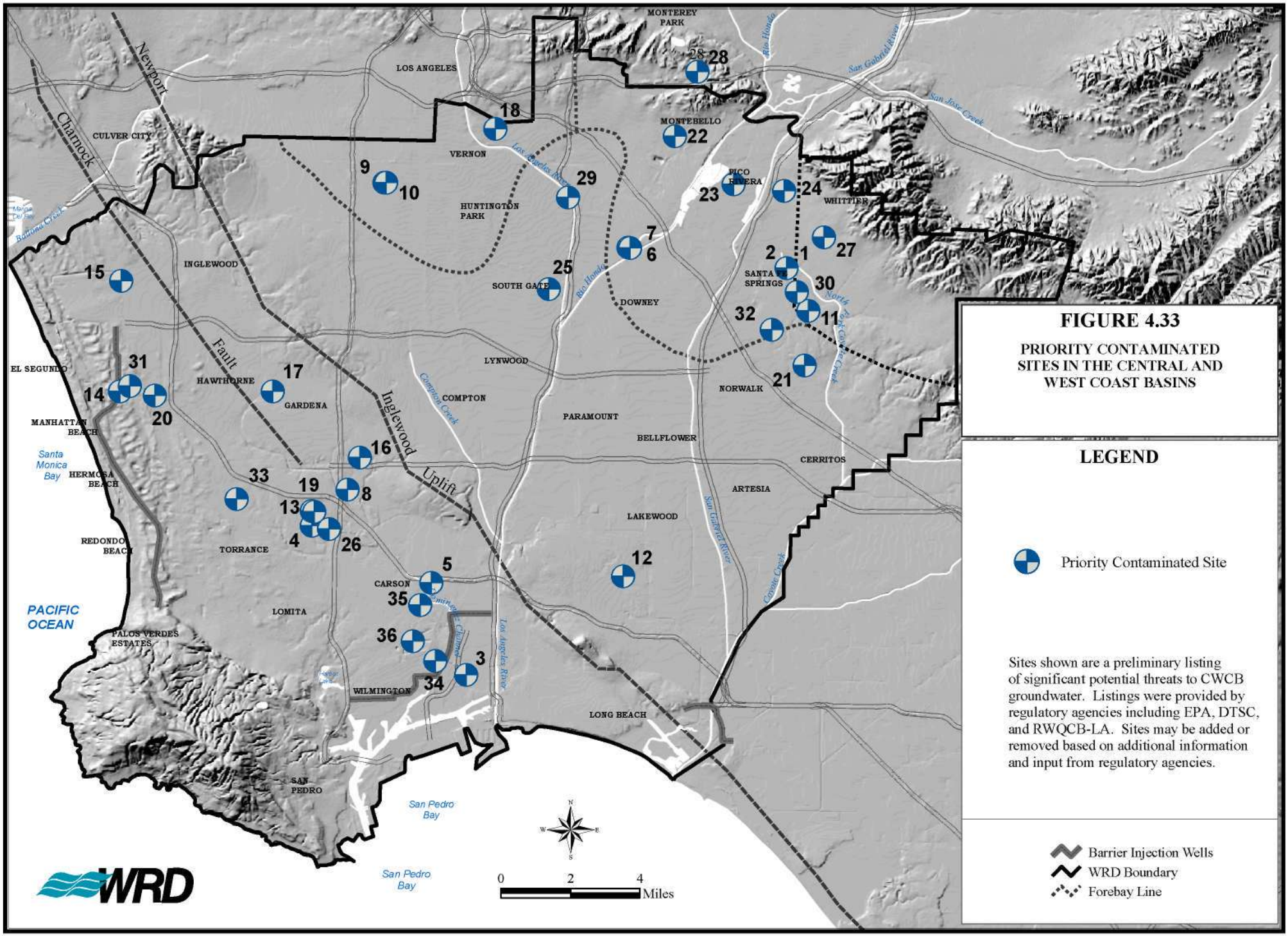


FIGURE 4.33
PRIORITY CONTAMINATED SITES IN THE CENTRAL AND WEST COAST BASINS
LEGEND
Priority Contaminated Site
Sites shown are a preliminary listing of significant potential threats to CWCB groundwater. Listings were provided by regulatory agencies including EPA, DTSC, and RWQCB-LA. Sites may be added or removed based on additional information and input from regulatory agencies.
Barrier Injection Wells
WRD Boundary
Forebay Line
0 2 4 Miles
WRD
PACIFIC OCEAN
Santa Monica Bay
San Pedro Bay
LOS ANGELES
MONTEREY PARK
MONTEBELLO
VERNON
CULVER CITY
HUNTINGTON PARK
INGLEWOOD
SOUTH GATE
DOWNEY
WHITTIER
SANTA FE SPRINGS
NORWALK
LYNWOOD
COMPTON
PARAMOUNT
BELLFLOWER
CERRITOS
ARTESIA
LAKEWOOD
EL SEGUNDO
HAWTHORNE
GARDENA
MANHATTAN BEACH
HERMOSA BEACH
REDONDO BEACH
TORRANCE
CARSON
LOMITA
PALOS VERDES ESTATES
WILMINGTON
LONG BEACH
SAN PEDRO
Newport
Charnock
Fault
Inglewood
Uplift
Los Angeles River
San Gabriel River
Rio Hondo
Compton Creek
Coyote Creek
San Jose Creek
North Fork Coyote Creek
Barrington Creek
Harbor Lake
Dominguez Channel

"To provide, protect and preserve high quality groundwater through innovative, cost-effective and environmentally sensitive basin management practices for the benefit of residents and businesses of the Central and West Coast Basins"

Water Replenishment District
of Southern California
12621 East 166th Street
Cerritos, CA 90703
(562) 921-5521
(562) 921-6101 Fax
www.wrd.org